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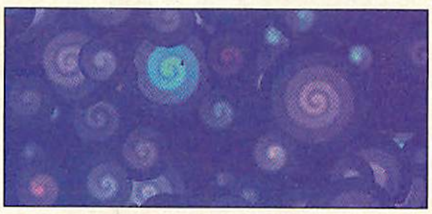
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Acorn unveils grand plans for 21st century operating system

THE BOFFINS at Acorn have done it again. They have looked around for suitable off-the-shelf technology, not found anything to fit the bill and then decided to create their own instead. This was the philosophy and daring which resulted in Acorn's ARM processor project no less than 14 years ago and now Acorn is embarking on software-version history repeated.

It has announced project *Galileo*, a long-term and deadly serious attempt to produce an ultra-modern scalable, portable, multi-tasking, multi-threading, object-oriented, microkernel operating system perfectly suited for controlling the expected countless millions of electronic devices of the future, from smart mobile phones and pocket computers to Internet access devices, workstations and even multi-processor power computers. Galileo's importance as a future strategy for Acorn was such that it was obliged to make a statement regarding the technology to the financial markets.

Galileo is not intended to be a direct replacement for RISC OS, although ultimately it will indeed be a vastly superior operating system in all departments. Its primary objective is to enable Acorn to compete in the semi-embedded systems market, primarily using ARM technology but running on almost any modern CISC or RISC processor as demand and commercial circumstances might dictate.

RISC OS, although small enough to fit into some large ROM chips, is too big and too rich to live comfortably in, say, a mobile phone or even a pocket computer. Galileo's microkernel, the heart of the operating system, will be tiny – around 15K. RISC OS is also too primitive to succeed as a 21st century operating system. Galileo will have to be ultra-reliable – crashing just won't be an option and it has been designed from the ground up to conform to a system philosophy called 'guaranteed quality of service,' meaning tasks allocated system resources will be guaranteed those resources unless there is a higher priority determined by the user or the application. That said, Acorn will continue to support, develop and maintain RISC OS for the foreseeable future, especially as a version, called NCOS, is central to Acorn's work on Network Computers.

Unlike RISC OS, which is largely written in machine code, Galileo and its system libraries, the modular parts of the operating system which live above the kernel, will be mostly written in C++. A hardware 'abstraction' layer or interface will be written in native machine code, but this will be a tiny fraction of the overall code base. Galileo will initially be produced for ARM processors but it should be a relatively straightforward task to port it to other processors, including Intel 486 and Pentium families, should the need arise.

Currently, 15 people are working on Galileo and the team is likely to be doubled by the end of the year. A prototype kernel is up and running but it only performs very basic functions. The aim is to be able to demonstrate Galileo performing useful real-world tasks by the end of the year and hopefully by Acorn World 97. Third-party developers could be supplied with prototype code as early as this summer.



Peter Bondar, Divisional Director

Technologies inherent in RISC OS will be borrowed by Galileo – the anti-aliased font management technology, for example, will be enhanced for Galileo and that module installed when required, say for Web TV applications. Acorn has confirmed it will be theoretically possible to build a RISC OS emulator for Galileo but this would be a long-term objective, if at all. It's more likely that developers will be offered a source-code route to porting their applications to Galileo.

Of course, Acorn is not the only company developing compact, portable and advanced operating systems. Galileo will effectively be competing with the Psions of this world, but the modular object-oriented nature of the technology means parts of its capabilities could be adapted and executed on someone else's operating system. Hypothetically, for example, Galileo's expected font manager could be licensed by Psion – if it wanted it.

The scalability built into Galileo cannot be understated. At one end of the scale Acorn sees Galileo being the OS of choice for sophisticated pocket devices like multimedia cellular phones which can multi-task a video phone application with a diary and scheduling function. You can add a Java Virtual Machine module to enable it to become a Network Computer in a variety of devices of different shapes and sizes. Indeed, it's not difficult to see that it will eventually replace NCOS. You could give Galileo a graphical desktop user interface, multiple processors and, hey presto, you have a powerful workstation or even a server platform. Galileo will be developed according to how Acorn sees the opportunities present themselves.

Peter Bondar, divisional director of Acorn commented, "The new operating system will be another major step forward for Acorn as we continue to set precedents, bringing innovative designs to manufacturers of a wide range of digital products. We are already leading the field in providing high functionality, cost-effective designs to a growing number of manufacturers around the world and I expect this to increase over the next few years. The challenge is already on for consumer electronics designers to increase functionality, while keeping costs and memory footprints as low as possible and Galileo will be a key element in achieving this."

The ARM processor has taken nearly 15 years to establish itself as one of the main choices for low-cost RISC processor applications. Acorn will be hoping Galileo will achieve a similar distinction in the world of operating systems but in a rather less leisurely manner!

Internet TV deal for Acorn

VIEWCALL America, Inc. has struck a deal with Acorn which underlines the importance of the Internet over original Acorn TV ambitions. Acorn's Online Media business was set up three years ago to help usher in the dazzling world of interactive TV over high-bandwidth private networks, but since then the Internet has helped stifle the interactive TV trend. Online Media continues to bide its time but for now Acorn's technology will assist the roll-out of a different kind of interactive TV – Internet or Web TV.

Acorn and ViewCall, the latter not to be confused with an entirely separate UK-based company, have announced a joint marketing and technology venture which will promote RISC OS and ViewCall's On-TV service to manufacturers of Internet Appliances like set-top boxes and Internet-enabled TVs.

"We chose to partner with ViewCall because our business objectives are extremely complementary," said Peter Bondar, divisional director of Acorn. "While Acorn is focused on licensing its OS technology into the world-wide electronics market with particular emphasis on the Internet appliance sector, ViewCall is focused on bundling its On-TV service with products from consumer electronics manufacturers entering this same market."

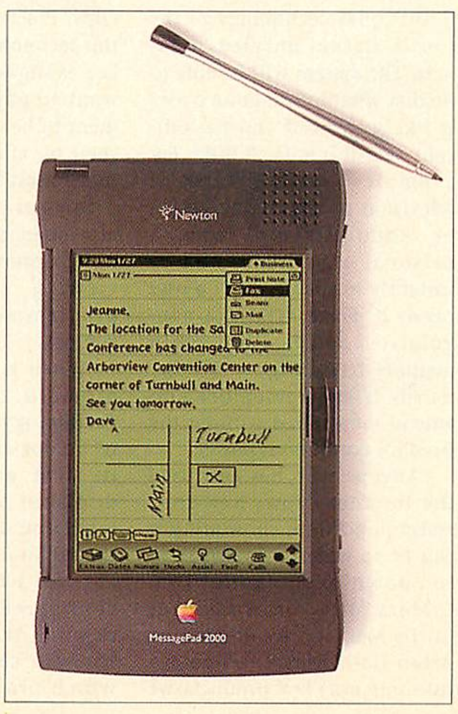
Alan McKeon, president and CEO of ViewCall America, Inc. explained that Acorn was the obvious choice for the unfolding Internet TV market: "Not only is its OS technology well-proven in this market, its experience lends itself to turning market-leading solutions around quickly, and cost-effectively."

ViewCall America's On-TV is a personal Internet TV channel that keeps viewers in touch through e-mail, information tailored to viewer needs and general World Wide Web access. The message is that On-TV enhances television by giving viewers personalised information at the click of their TV's remote control, an approach that was applauded in a recent Dataquest study covering the Internet TV market. ViewCall America is a majority-owned subsidiary of Colorocs Information Technologies, Inc., based in Norcross, Georgia and can be found on the Web at http://www.viewcall.com

Imminent arrival of new Newtons

APPLE has stated it intends to ship its new ARM-powered Apple eMate 300 and MessagePad 2000 Newton-based mobile computers by the end of March. Xemplar has already been introducing pre-production eMate 300s to teachers and schools in the UK, while petrol-heads have been clamouring for the 1.4lb 160MHz StrongARM-driven Newton MessagePad 2000.

Apple has revealed that MessagePad owners can expect as much as 3-6 weeks of typical usage on a set of four AA batteries. This compares with just 3-6 hours on the original and much less powerful MessagePad three years ago, though that made do with smaller AAA batteries.



Werewolf to concentrate on T.A.N.KS.

Werewolf Software, after experiencing great success of its T.A.N.K.S. game released last year at Acorn World 96, has decided to concentrate on the Acorn games market. This means it will be removing *CDtracker* and *CDtracker Plus* from its product portfolio.

To clear stocks of CDtracker Plus, Werewolf has decided to reduce the price from £24.95 plus £1 P&P to just £7, including postage and packaging. The offer includes a fully registered copy of the latest version of CDtracker Plus, technical support and free upgrades. Werewolf explains that even though it is discontinuing CDtracker and CDtracker Plus, it does NOT mean it will be dropping technical support.

For more details, check out the Werewolf Web site at http://www.werewlf.demon.co.uk or call 0181-467 1138.

Acorn World goes back to Wembley

The annual Acorn World exhibition will return to Hall 3 at the Wembley Exhibition and Conference Centre after its switch to Olympia 2 last year. The event is set to take place from 31st October to 2nd November and will be co-sponsored by Acorn and Xemplar.

Organiser EPS Events Limited has revealed it is planning to offer significant long-distance travel concessions to all Acorn user groups who wish to arrange group travel for their members.

Acorn World will have a stand at the Wakefield Spring Show and will be taking advance ticket orders as well as stand bookings. There is a revamped Acorn World Web site (currently undergoing reconstruction) at http://www.argonet.co.uk/acorn-world

The Games Suite v2.00 now available

A totally revised version of the *Games Suite* games authoring package has been released by Grasshopper Software. Ben Ollivere of Grasshopper Software explained that the Games Suite system assumes no prior programming knowledge and can be used on two levels: firstly, by those who are competent coders and just require the use of a specialist games library of ARM code routines; secondly, by those with little or no programming experience.

Upgrades will be available for a nominal handling fee by post for versions 2.00 to 2.09, after which an upgrade fee will be charged. Free upgrades will be dispatched to all users of version 1.00. The Games Suite version 2.00 is priced £25 inclusive.

For more details Grasshopper directs you to one of the flamboyant Web page addresses of the month: http://users.ox.ac.uk/~sjoh0576. Benjamin can be contacted via e-mail at: benjamin.ollivere@sjc.ox.ac.uk.

StrongARM DoggySoft patch

DoggySoft Ltd says it has discovered a new bug in RISC OS 3.7 when used with a StrongARM processor. The bug isn't very friendly to DoggySoft's Internet Suite *!Termite*. A patch to fix the problem, called !WTBPatch, is available from the DoggySoft *What's New?* Web page.

JavaOS for ARM confirmed

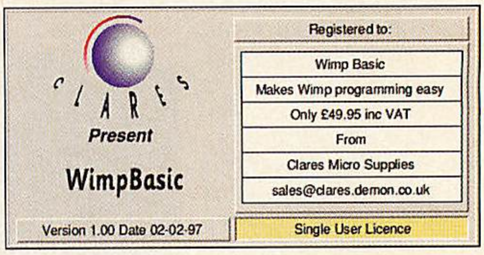
ARM Ltd and Sun Microsystems, Inc.'s JavaSoft business unit have confirmed they have collaborated to enable the JavaOS operating system to run on the ARM RISC architecture. The ARM version of JavaOS will now be available directly from JavaSoft.

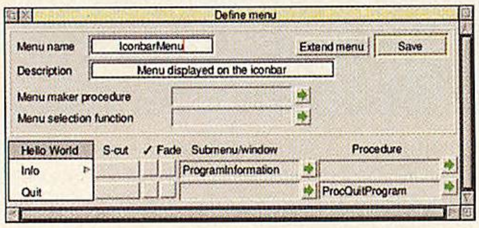
JavaSoft will license JavaOS for the ARM architecture and provide technical support directly to licensees choosing the ARM. JavaOS is an operating system designed specifically, but is exclusively, for running Java applets. To run Java applets you need a Java Virtual Machine and Acorn's version of RISC OS for Network Computers, NCOS, incorporates such a Java Virtual Machine. However, JavaOS will compete with NCOS in some areas.

Clares ships WimpBasic

WIMPBASIC, a total programming environment for RISC OS 3.1 and later has been shipped by Clares Micro Supplies. The new package enables you to write RISC OS graphical desktop applications without having to wade through complex low-level commands and parameters. WimpBasic has a graphical Menu Creator, graphical Window Creator, interactive Variables Editor and an easy-to-use Code Editor.

There is also a feature called 'Throwback' which enables you to enter code at the line causing an error. A comprehensive set of Tutorial applications and examples are also provided. Reaction to WimpBasic has been swift – with positive comments appearing on Acorn Internet newsgroups. While RISC OS Basic is very powerful, it is difficult for novice or intermediate programmers, who represent the majority of course, to build desktop applications without considerable help and now that help would appear to have arrived, courtesy of Clares WimpBasic. The package is priced at £49.95. Clares on the Web can be found at http://www.stcoll.ac.uk/clares/.





More details on Curtis Mathes deal

ACORN REVEALED further details of its TV-centric technology which was licensed by Dallas-based Holding Corporation last month for integration into the company's forthcoming line of uniView interactive television products. UniView will be used by Curtis Mathes in consumer devices from set-top boxes to web-enabled TVs.

Acorn has contributed its flashDisplay technology to the Curtis Mathes uniView products. The system will be able to predict what information a user is likely to need and periodically save it into flash ROM. For example, a week's worth of television programming guides or appointments from a personal organiser would be instantly available when a user needs it. Flash ROM is a non-volatile solid state chip memory technology – in other words it can remember and amend data stored without the need for continuous power.

"Anyone who has ever used the Internet knows how frustrating and time consuming it can be to wait for information to download," said Tom O'Mara, director of sales for Curtis Mathes. "By integrating Acorn flashDisplay technology into our uniView products we will be able to save users the hassle of entering URLs, waiting for the modem to get through and downloading the files. They will have the information they want, when they want it."

Acorn says flashDisplay technology can be incorporated into next-generation interactive hardware or PCs to download things like software updates, browser plug-ins or even video clips. Practical applications of this technology are widespread. For example, a company may want to pay for its advertisement to be downloaded so it is seen by the user every time they restart the service.

Parental control systems can also make use of the technology to prevent children from viewing inappropriate programmes and Internet content.

Acorn is working hard to promote its TV Centric Technology: this collection of technologies allows high-quality text and images to be displayed on television-based interlaced displays. Acorn says the technology is highly suitable for use with NTSC/PAL configured television sets through the use of a unique hardware and software solution which provides anti-aliased fonts for high-definition text, anti-twitter software for stable text and images, and software programmable video resolution, colour depth and scan rates.

Acorn Expo 97



AFTER THE success of Acorn Expo'96, the Big Ben Club (Dutch Acorn User Group) are organising Acorn Expo'97.

It will take place on Saturday 31 May 1997 at Expohall, Hotel Mercure Buizerdlaan 10, Nieuwegein from 10am to 5pm. There will be exhibitors and promotions from various companies, including Dutch, German and British Acorn dealers, plus demonstrations by club members.

For more information contact Herman Corijn (PR)
Tel/Answ./Fax: +31 714 080 339
E-mail : bigbenpr@nedernet.nl
WWW: http://www.nedernet.nl/~bigben

CJE accelerates x86 Risc PC Card

CLAN MEMBERS already know about this development from CJE Micros but if you've not yet joined the club – read on. CJE Micros has built a reputation for tweaking x86 Risc PC cards and its new product probably represents the best performance you can get on this class of product.

The CJE 133 MHz 5x86 differs crucially from most of the competition in having a much larger secondary cache memory. Unlike Acorn RISC systems, for optimum performance, PC systems are fitted with fast external memory for caching instructions and data for the main processor. Until now, x86 Risc PC cards have usually been fitted with 128K secondary cache memories, but in the main PC market the trend has moved on to 256K and even 512K caches to coax out extra performance. CJE Micros is the first manufacturer we are aware of to implement the larger 512K cache in its x86 Risc PC card.



The CJE card uses a 133MHz AMD chip, a Pentium-class processor designed specifically to operate using a 486-style bus, which is implemented in the basic architecture of all x86 Risc PC cards. CJE is charging £390 inc. VAT when purchased with a new Risc PC or when part exchanged with a standard PC SX33 card. On its own, the card is priced £450 inc. VAT. CJE says it probably won't be able to upgrade existing cards because of the amount of surface mount re-work involved, however it is looking into a part-exchanging pricing deal.

CJE has supplied us with some provisional benchmark results using prototypes. With Windows 95 and Windows User benchmarks test, speed benefits over 128K cached cards in 'Windows redrawing' have been measured at 30 per cent over Cyrix 100MHz cards and 26 per cent over AMD 133MHz cards. This was using a StrongARM Risc PC, 24Mb PC RAM, 800x600x256 screen mode, Conner 540Mb hard disc and PC-Pro 2.03.

New version of ARMLOCK

DSL Supplies, best known for its *Squirrel* database package, has announced a new version of ARMLOCK, the hard disc security protection solution compatible with RISC OS 3.6 and StrongARM Risc PCs. The new version is also available as an upgrade for existing users.

DSL
Tel/fax: (01329) 841600

New man at Argo



Ian Goodall has been appointed as Sales and Marketing Manager at Argo Interactive Group. Contact him on (01423) 815815

Rockwell licenses ARM

ROCKWELL Semiconductor Systems has announced today it has licensed ARM RISC microprocessor technology. Rockwell will incorporate ARM CPU cores into chip sets for communications products like wireless platforms and digital infotainment solutions as well as high-density central site modem systems for Internet access using Rockwell's recently announced K56Plus technology.

"Rockwell selected ARM's RISC technology because of its industry leading price, performance and power efficiency. Embedded 32-bit ARM RISC controllers are a key enabler of Rockwell's diversification into new communications areas," said Dwight Decker, President, Rockwell Semiconductor Systems. It is already theoretically possible to build a multi-processor Risc PC with an ARM in the hard disc controller, the hard disc drive and one in a modem, which means you could have around 10 ARMs inside one box!

StrongARM telling the time

BRIAN O'Keefe is a member of a Young Enterprise company run by students which has decided to make clocks. And what has this to do with Acorn? Brian makes StrongARM clocks and we don't mean the 200MHz variety. Brian explains: "We make clocks with any design printed on the front but one of our major products is the StrongARM clock. This design features the Acorn StrongARM computer as in the *BYTE* advertisement and we are now taking orders from the public."

The clock is available for £7.50 plus £2.50 for postage and packing in the UK. More details can be found on the Web at http://www.keeffe.demon.co.uk/dinmyx.htm. Alternatively, orders can be sent to Dinamyx St., Columba's College, King Harry Lane, St. Albans, Herts AL3 4AW. Brian can be contacted via e-mail at: dinamyx@keeffe.demon.co.uk



news

Tune in on your Acorn

RAYMOND Datalink has announced *DeskFM*, a software-controlled FM stereo radio receiver card incorporating a digital sound processor.

A sister product, *DeskSP*, is basically DeskFM but minus the radio tuner section. There is software control of automatic station store, auto search, manual store, manual search and 200 station presets. RDS upgrade is an optional extra.

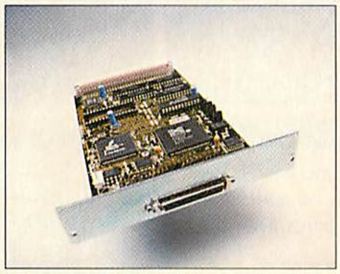
The listening source can be selected from any combination of four internal and two external line inputs. The line output can be connected directly to headphones or to an amplifier for listening through speakers. The sound processor is available with bass and treble controls or a five-band graphic equaliser. Comprehensive software emulates the look and feel of conventional hi-fi units.

Both DeskFM and DeskSP can be used as a powerful control centre for multimedia sound sources, as well as for selecting and enhancing output from the computer, CD-ROMs, or sound samplers.

The DeskSP card is priced £49.99 + VAT, and the DeskFM version is £79.99 + VAT.

Raymond Datalink
Tel/fax: (01582) 757725
E-mail: sales@raylink.demon.co.uk

More details on the new Cumana SCSI card



LAST MONTH we previewed the new Cumana SCSI II card. Now we can show a picture of it and reveal its price – £149 + VAT. The drive supports 32-bit DMA transfers at up to 7Mb per second and features 256K of flash ROM to cater for future software upgrades. PC formatted media is also supported.

Cumana
Tel: (01483) 503121, Fax: (01483) 451371

Watch TV on your Risc PC

Yellowstone Educational Solutions has produced a new product for watching TV or grabbing video stills on your Risc PC. DeskTV is a card and software package which has a modular upgrade path. The basic entry-level card has no TV tuner but can accept an external video feed – a video recorder, for example.

The standard card has a TV tuner for a live broadcast feed from an aerial. Coming soon is a teletext module and later in the year Yellowstone hope to add a Nicam stereo decoder, MPEG video playback and a simple video titling upgrade. 1Mb VRAM and RISC OS 3.5 or later is required. The entry-level card is priced £186.38 + VAT and the standard card is £220.43 + VAT.

Yellowstone Educational Solutions
Tel: (01582) 584828, Fax: (01582) 654440
WWW: http://www.yellowstone.co.uk

Tesco Computers for Schools 1997

THE 1997 Tesco Computers for Schools scheme starts on March 17th. By now, 27,000 schools throughout the country will have received information packs on this year's scheme, which will enable schools to collect vouchers from Tesco supermarket shoppers which can be redeemed against Apple, Acorn and PC equipment from Xemplar Education Ltd. 5,000 computers were claimed by schools last year.

Zip to it

Clares Micro Supplies has broken Argo Interactive's monopoly on the supply of 100Mb parallel port removable Iomega Zip drives to the Acorn market. Their price at the press time was £149 plus VAT (£178.60 inc. VAT and delivery), though Argo had shaved a few pounds off that price in response. Alternatively, if you have a SCSI card you can opt for a SCSI version of the drive, which will be cheaper and faster than the parallel port version but less versatile as it can't be used on any old Acorn or PC which has a modern parallel port. Castle Technology, for example, is selling SCSI Zip drives for £129 plus VAT (excluding P&P). Both Clares and Argo sell SCSI Zip drives too, though it's a good idea to ensure that your SCSI interface is compatible before buying.

Contacting me

You can contact the news page by writing to me, Ian Burley, at Acorn User, Adlington Park, Macclesfield, Cheshire, SK10 4NP, or by e-mail to aunews@idg.co.uk

New products /upgrades

PRODUCT	NEW FEATURES/PRODUCT DETAILS	PRICE	CONTACT
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Sentence Creator NEW!	• Update of BBC program • Use word banks to create sentences • Grammar appreciation • Speech synthesiser	£35 ex VAT	Xavier Tel: (01248) 382616
Welsh Language Software NEW!	• Welsh language versions of a trio of Xavier progams • Soapbox due for release • Sentence Pumper II and Sentence Creator available soon	Soapbox is £37.50 ex VAT	Xavier Tel: (01248) 382616

PHONE ORDERS: 01728 621222

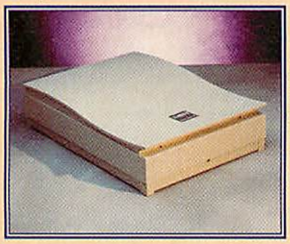
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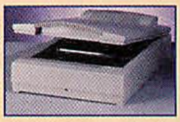
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Scanflat 1200



Scanflat II with Transparency adaptor



Price in brackets includes VAT	Scanner Price	Trans. Adaptor
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Data transfer rate	306kb/s	600kb/s	1200kb/s	1800kb/s
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Combo cased	£99	£129	£189	£259
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* typical specifications

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A305 A310 A440 A410/1 R140 A540 R260 A3000 A5000 A3010 A3020 A4000 A4 RiscPC600 RiscPC700 A7000

graphics

Long-awaited TopModel 2 nears release

TOPMODEL 2 is almost upon us and an exclusive pre-release version suggests how good this 3D editor is becoming. The new rendering engine, Gemini, includes several improvements including the all important polygon clipping fix. In version 1, objects weren't clipped properly to the screen edges, causing major display problems. For added realism, Sincronia has now included atmospheric effects like fog, although the lens flare and anti-aliasing features promised in the press releases did not appear to be working. Presumably they will be added before the full release of the software.

The design of the interface, particularly the two main button bars, has undergone some major changes. *TopModel 1* received some criticism for the number and complexity of the button controls, but fortunately this revised version improves the situation. The use of labels alongside the buttons makes the interface much less daunting for a beginner while retaining a similar style to the old version for all the expert users out there.

The engine itself comes complete with programmer documentation, allowing 3D rendering using a number of SWI calls. This opens up the interesting possibility of integration with other software. A bold and forward thinking strategy from Sincronia. Hopefully other developers will take advantage of this move and will incorporate Gemini into their own software. The field is also open to PD authors. How about an animated scene viewer that presents a fly through of a TopModel 3D scene?

An interesting but essential addition to the suite of TopModel programs and utilities is the new VRML browser. Like the TopModel viewer, it's been made public domain and is available now for download from the Spacetech web site. The viewer integrates well with Fresco for WWW use, but does have some limitations like the lack of texture or object library support. Roll on VRML 2 support.



The TopModel 2 VRML browser gives full control over the viewing quality and atmospheric features like fog

Dynamic memory allocation hasn't been implemented in the main editor as yet but we are assured that this is on the cards for the next release. And I think that's the main point to be made about TopModel 2. The continued development suggested by Sincronia after its first release of TopModel is well on course. The release of a whole new rendering engine demonstrates the commitment to take TopModel all the way to a completely professional 3D package. We aren't quite there yet, but this convinces me that Sincronia are going all the way.

Contact Spacetech on (01305) 822753 or Gian Carlo on s64922@galileo.poilito.it

Paul Wheatley

Picture of the month

MARK MILLIAGAN from Scotland painted this month's winning pictures using *ProArtisan 24*. In one image Mark has managed to achieve very powerful 3D relief effect to the paint strokes and with the other a very subtle watercolour effect.



These images have become a part of Spike's web page but though a stunning graphic, I do not recommend viewing '3D brushstrokes' close up if you are feeling at all nauseas.



One step closer to Photoshop

LAYERS FOR *Photodesk* which will be available to users of Photodesk 2 and not Photodesk Light, is nearing completion at the time of writing. When you read this the upgrade should be available from Spacetech. From what has been demonstrated at Acorn World and more stably at BETT, this certainly is an unmissable upgrade.

Spacetech, tel:(01305) 822753

Canon Photoreal inkjets

Canon were showing off their new A3 and A4 colour inkjets at BETT a few months back. Sadly for Acorn users, drivers for these superb inkjets have not emerged although they can emulate earlier models for which Acorn drivers exist. The technology which makes the new Canon inkjet truely stand out is called 'Photoreal' and uses a very basic version of continuous tone printing employed by dye-sublimation printers.

In continuous tone printing, the inks which are usually cyan, magenta, yellow and black can be overlayed at varying opacity at each printed point. In this way, the palette is expanded from four basic colours to potentially millions. Expensive dye-sublimation printers can lay down 256 levels for each of four colours, while the Canon Photoreal printers can only manage 0 per cent, 30 per cent, 70 per cent and 100 per cent opacities for each of its four inks. Although there are only four levels this increases the number of colours available to an extent that even the maximum 720x360 resolution produces better quality colour prints, especially of photographic imagery, than printers with double the resolution.

There is rumour, and perhaps then hope, that driver development will be taken over from Acorn by a third party, but no official information has been released. With the superb A3 BJ4550 selling at under £300 this is surely one of the finest range of printers from Canon and it would be a tragedy if Acorn users could not benefit.

Contacting me

You can contact the graphics and DTP page by writing to me, Jack Kreindler at *Acorn User*, Media House, Adlington Park, Macclesfield SK10 4NP, or by e-mail to augrafix@idg.co.uk.

Showroom open Mon-Sat 10-18.00 hrs (All prices INCLUDE VAT) Carriage not included

CD-ROM Drives

Multi-Session, PhotoCD, CD-DA, White & Green Book compatible. SCSI drives require SCSI card with CDFS>2.20
Carriage: a=£2, b=£6, c=£8

Internal ATAPI CD-ROM Drives

Panasonic 8xCD ATAPI (Tray)	£80b
Cable & Fitting Kit	£10a

Above drives are compatible with RiscPC/A7000 only.

Internal SCSI Drives (Tray)

Sony 2x CD SCSI 275ms	£80b
Pioneer 12x CD SCSI 130ms	£200b

External SCSI CD-ROM Drives

Sony 2x CD SCSI 275ms	£135c
Pioneer 12x CD SCSI 130ms	£280c

For SCSI interfaces refer to Hard Disc section adjacent.

Hard Discs

Carr.: a=£2, b=£6, c=£8

IDE 3½" Bare Hard Drives

Seagate (Connor) 1Gb	£150b
IBM 2.1Gb	£200b

ForA3000/A3010 hard discs see Hard Card section below.

SCSI 3½" Bare Hard Drives

IBM 540Mb	£170b
Fujitsu 1Gb	£250b
IBM 2Gb	£300b

Syquest Removable SCSI Drives

All following Syquest Drives include a Cartridge.

105Mb Internal	£109b	105Mb Cartridge	£29a
EZ230 External	£242c	EZ135Mb Cartr.	£20a
270Mb Internal	£165b	EZ230Mb Cartr.	£21a
270Mb External	£245c	270Mb Cartridge	£40a

Hard Disc Interfaces/Accessories

IDE interface	£85b	50-50C SCSI Cble	£10a
Morley Uncached	£113b	25D-50C SCSI Cbl	£10a
Morley Cached	£165b	SCSI2-50C Cable	£18a
Cumana SCSI II	£175b	SCSI2-25D cable	£18a
PowerTec SCSI2	£195b	50IDC 4-way SCSI	£10a
		50C Terminator	£10
		50HPC Terminator	£15
External case/psu	£90c	2nd IDE Drive Kit	£15a

zip/jaz Drives

- zip & jaz Drives work just like hard drives except they are removeable, letting you instantly access files and applications.
- zip drives use 100Mb capacity discs & jaz drives use 540Mb/1Gb discs allowing any number of discs giving unlimited capacity.
- The drives are fast. Data transfer speeds around 1Mb/s for zip drives & >2.3Mb/s for jaz drives - ideal to backup your hard drive.
- Each drive comes with 1 year warranty and a starter disc.
- These drives require a SCSI card that is suitable for removeable devices.

Internal zip drive (5¼")	**£145c**
External zip drive	**£145c**
Single 100Mb zip Cartridge	£15a
Pack of 6 zip Cartridges	£65b
Internal 1Gb jaz drive (3½")	**£350c**
External 1Gb jaz drive	**£430c**
Single 540Mb jaz cartridge	£Call
Single 1Gb jaz cartridge	£73a

TopicArt

TopicArtCD1 — £20a

This CD-ROM Contains over 2000 ClipArt files, each in Draw, ArtWorks & EPS formats + Replay Movies & demos

Floppy discs — £8a each

Single disc clipart containing approx. 50 high quality draw format clip art images on each disc, on a single subject. Comes with mono reference sheet. 20 subjects are available now. Please specify when ordering. Site licence is included.

1 General	11 Tools
2 Transport	12 AnimalsGB
3 Costumes	13 Chemical Hazard Signs
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6 Road Signs	16 Safety Signs
7 Sports Equipment	17 Xmas1
8 Sports Figures	18 Xmas2
9 Dinosaurs	19 Xmas3
10 Symbols	20 Xmas4

RiscOS Computer Systems

All include 1yr on-site maintenance. 3yr On-site is available. **Carriage included on computer systems.** For PC Cards see section below. **All machines are single slice & have a backplane fitted except the 4Mb machines.**

Special Offer - Trade-in your old RiscOS, PC, Amiga or Atari computer for a £200 discount!

Computer Model with	14" Monitor	17" Monitor	No Monitor
NetStation (28k modem or 10bT Ether)	£725	£1100	£460
A7000 4MHD540	£1070	£1450	£830
A7000 4MHD540+8xCD	£1140	£1520	£900
RiscPC700 4MHD540	£1275	£1650	£1030
RiscPC700 4MHD540+8xCD	£1345	£1720	£1100
RiscPC700 5MHD540	£1425	£1800	£1180
RiscPC700 5MHD540+8xCD	£1495	£1870	£1250
RiscPC700 10MHD1Gb	£1575	£1950	£1330
RiscPC700 10MHD1Gb+8xCD	£1645	£2020	£1400

Deduct £45 for iiyama MF-8617E or £20 for iiyama MT-9017E.

StrongARM (when purchased with a RiscPC) **£116**

20/20 Finance on Acorn computers - ~20% deposit & 20 interest free monthly payments. Loans from £700(min) - £2000. Subject to status.

QuickLynk (v1.04) £32a

With 5m Local Cable	**£39a**
With 10m Local Cable	**£45a**
With 20m Local Cable	**£52a**

QuickLynk allows you to access another unattended RiscOS computer remotely using the serial port via modems or locally using a cable to connect the 2 computers. Each computer can be configured to allow access to any attached filing system device eg ADFS, IDE, SCSI, CDFS, etc. Once connected, files can be transferred to/from the remote computer. Other features include password access, auto dialler with phone book and chat mode to send messages to remote computer/user. Transfer rates up to 1.9 kbytes/s can be achieved with older computers, eg. A410, A3000, rising to 11.4 kbytes/s on the RiscPC range. The transfer rate is limited by the speed of the serial port. QuickLynk cannot at present be used directly from programs/command line. Requires RiscOS 3.10 or greater, ring for details.

QuickTile (v1.03) £29a

QuickTile allows you to create posters from ANY RiscOS application, including Impression. Simply enter the size of poster required & select PRINT from the application! QuickTile does the rest, printing each tile with crop marks and tile references. New features include the facility to print inverted crop marks or no crop marks. QuickTile can only be used with the RiscOS printer Driver or TurboDrivers.

Requires RISCOS 3.10 or later. Return disc to upgrade for £4. Upgrade from Tiler for £18.

Mail Order - 0161-474 0778 (All prices INCLUDE VAT) The lowest prices without compromise

RiscPC PC Cards

A=Upgrade from ACA42 or bought with RiscPC, B=purchased seperately. Carr.: £6

PCCard	A	B
5x86-100	£350	£460
486DX4-100	£230	£350
486DX2-66	£175	£290
PC Pro (without PCExchange)		£40
Window '95 CD (Full)		£90a

The above can be installed directly from CD without previously installing PCDOS/MS-DOS.

RiscPC Upgrades

Carriage: £3 for Sound Cards

StrongARM Upgrade	£275b
2nd Slice with PSU	£117c
2nd Slice without PSU	£90c
YES 16 bit Mozart Card	£70a

Memory

The current price trend is up as at 03/02/96. The following prices are whilst stocks last.

RiscPC/A7000 SIMMS

4Mb	£25a	8Mb	£30a
16Mb	£75a	32Mb	£125b

RiscPC VRAM

1Mb 2nd user	£45	2Mb	£120
1-2Mb u/g (exchange)			£90

Call for details of memory for other models.

Monitors (Carriage £10)

Older computers will require an adaptor	£12
AKF50 14" 0.28dp	£245
Ilyama MF-8617E 17"	£575

High spec FST Tube with 0.26" dot pitch

Ilyama MT-9017E 17"	£600

Very High spec Diamondtron tube, 0.25" stripe

Printers (Carriage £8)

Canon BJC-240	£200
Canon BJC-4100	£220
Canon BJC-4200	£250
Canon BJC-4550 (A3)	£360
Canon BJC-620 (720dpi)	£350
HP LaserJets Printers	£Call

Add £47 to above printers for TurboDriver

I³ Networking (Carr. £6)

A30X0 EtherLan 102	£140
Archi EtherLan 514	£140
RPC/A7k EtherLan 602	£120

Add £17 to above prices for Access+.

Portable Computers

Carriage: a=£2, b=£6, c=£8

Pocket Book II (1Mb)		£315b
Psion	**3a**	**NEW 3c**
1Mb RAM	£290	£320
2Mb RAM	£320	£385

AutoRoute Express UK/Eire £62a
- one of the best packages for the PB/3a

A-Link	£59a	PC Serial Link	£60a
Parallel Link	£28a	Mains Adaptor	£18a
128k RAM SSD	£48a	512k RAM SSD	£135a
256k Flash SSD	£53a	512k Flash SSD	£89a
PB/Ps3 Games	£Calla	PBII/Ps3a Games	£38a

Hardware Upgrades

24i16 Card (1Mb)	£450b
FPA for 25MHz ARM3	£67a
iTV TVTuner+TT (1 only)	£100b
Joystick I/F (Not RiscPC)	£30a
Logitech Mouse (Acorn)	£26a
Midi Max Card (CC)	£79b
Movie Magic (1 only)	£250b
Scart Cable (9 or 15 pin)	£12a
Serial Upgrade (A3000)	£27a
25W Speakers (mains)	£35b
80W Speakers (mains)	£40b

Modems (Carriage £8)

14.4 Voice Sportster	£115
33.6 Voice Sportster	£180

Modems come with a 25-25 PC wired cable & 25-9 adaptor which may hinder the printer port. A 9-25 way cables is available at £10 See below. A3k/Archi req. Archi wired cable.

ANT Internet Suite II	£115a
ArcFax	£32a
Dual Serial Card	£104b
9-25 Archi or PC Wired Modem Cable	£12ea.
3-way Serial T-Switch (incl. comm. cable)	£32

Scanners (Carriage £8)

ScanLight Video 256	£215

Epson Colour Scanners, include !TWAIN & ImageMaster for RiscOS. Bundles include CorelPaint & OCR software for PC's/PC Cards.

GTx-5000 Para bundle	£369
GTx-5000 SCSI bundle	£499
GT-5000 SCSI (bare)	£369
GTx-8500 Para bundle	£630
GT-8500 (bare)	£529
GTx-9500 Para bundle	£760
GT-9500 (bare)	£679

Hard Cards/Multi-Pods

See top for other hard discs. Carriage £8

A3010 Hard Disc Multi-Pod

130Mb+User Port	£275

A3000 IDE Hardcards

130Mb + User Port	£210
160Mb + User Port	£255

Printer Consumables

Carriage: £2 for Cartridges, £8 for Toner

BJ-10 (BC-01)	£18	BJ-200 (BC-02)	£19
BJ-210 (BC-05)	£28	BJ-240 (BC-06)	£Call
BJC-600 Series		BJ-300 (BJI-642)	£16
BJI-201HCbk Black	£10	**BJC-4000 Series**	
BJI-201bk Black	£6	BCI-21Bk Black	£9
BJI-201C/M/Y	£8 ea.	BCI-21C Colour	£17
BJC-800		BC-20 Fast Black	£28
BJI-643 Black	£18	BC-22 Photo Cart	£34
BJI-643C/M/Y	£23 ea.		
HP DeskJets-500 ser.		**HP DeskJets 600 ser.**	
Mono	£23	Mono	£25
Colour	£25	Colour	£27

Epson Stylus Colour	Black £16/Colour £26
Epson Stylus Colour II	Black £20/Colour £26
C3903A Toner (LJ5P)	£64
EP-L Toner (LBP-4/HP LJIII)	£64
HP 92274A Toner (HP LJ4L)	£60
Swift24 Mono/Colour Ribbon	£8/£16

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Carriage: To benefit personal callers to our showroom carriage is itemised seperately. The carriage indicated is for single items. Please call us for total carriage when ordering more than one item since it is not cumulative.
Terms: All prices include VAT except books. Carriage is not included unless otherwise stated. Carriage charges apply to mainland UK (excluding remote areas, Scottish Highlands, Chann Isles, IOM), elsewhere at cost. Orders MUST be accompanied by a phone number. Prices and spec's subject to change without notification. Goods subject to availability. Goods not offered on trial basis. Restocking fee on non-faulty returns. Official orders welcome from educational institutes, chq with order under £30. E&OE.

Where to Find Us



Books (No VAT)

Carriage: a=£2, b=£6, c=£8,

Acorn RISCOS3 PRM's	£99.95c
Acorn Volume 5a PRM	£29.95b
Acorn BBC Basic VI Guide	£19.95b
Acorn RiscPC Tech Ref Manual	£49.95c
ArtWorks Made Easy (Dabs)	£5.00a
Budget DTP (Dabs)	£5.00a
'C' A Dabhand Guide (Dabs)	£5.00b
RiscOS 3 First Steps (Dabs)	£5.00a
Wimp Programming for All (Beebug)	£10.95a

CD-ROM's (Carriage £2)

CD software for RiscOS

ArtWorks on CD (CC) (Carriage £6)	£110
ClipArt CD 1/2 (CC)	£21 each
Dinosaurs (Microsoft)	£44
Dune II (Eclipse)	£41
Granny's Garden CD	£32
Guardians of the Greenwood	£51
Hutchinsons Encyclopedia	£20
Kiyeko	£Calla
Musical Instruments (MS)	£44
My 1st Incred. Amazing Dictionary (DK)	£36
PB Bears Birthday Party	£37
RiscDisc Vol 1 / 2 CD	£17 / £20
Simon the Sorcerer CD	£41
The Way Things Work (DK/IMS)	£44
Ultimate Human Body (DK/IMS)	£44

Applications

Carriage: a=£2, b=£6, c=£8

Acorn C/C++ (Acorn)	£245
Advantage (Longman)	£52a
ANT Internet Suite (ANT)	£115a
ArcFax (David Pilling)	£32a
ArtWorks (CC)	£100b
Card Shop (Clares)	£23a
Chameleon 2 (4Mation)	£39a
Compression (CC)	£34a
DataPower (IOTA)	£105b
DaVinci (Spex)	£Calla
Disc Rescue 2 (Look)	£45a
Easy C++ (Beebug)	£110a
Eureka v3 (Longman)	£110a
FireWorkz Pro (Colton)	£164a
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Font FX (DataStore)	£12a
Hatchback (4Mation)	£38a
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Image Outliner (IOTA)	£54a
Impression Style / Publisher	£80 / £135b
Impression Graphics Loaders (CC)	£40a
Impression Text Loaders (CC)	£30a
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Ovation Pro **Limited Offer (1 copy)**	£150b
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Resultz (Colton)	£88a
Rhapsody (Clares) v3	£87a
S-Base2 Personal / Developer	£57 / £115c
ShapeFX (Datastore)	£12a
Sibelius Junior	£50
Sibelius 6 / 7	£206b / £950b
Sleuth2 (Beebug)	£110a
SparkFS (Pilling)	£24a
Speech 2! (Superior)	£24a
StrongGuard (ARMClub)	£22a
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Chocks Compendium	£27
Chuck Rock (Krisalis)	£10
Crystal Maze (Sher)	£28
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Darkwood (Eclipse)	£28
Drifter (Oregan)	£34
Dune II (floppy) (Eclipse)	£31
Empire Soccer (Maglm)	£27
E-Type Compend. (4D)	£20
E-Type 2 (4D)	£27
Fire & Ice (Times Warner)	£22
Global Effect (Eclipse)	£30
GODS (Krisalis)	£10
Haunted House (4D) 2Mb	£20
Holed Out Compendium	£20
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Early Essentials (over 7), English (6-16yrs), French (8-16yrs), Junior Essentials (5-11), Maths (Number) (6-16), Maths (Algebra) (6-16), Maths (Statistics) (6-16), Spelling (over 9)

Fun School 3 (under 5, 5-7, or over 7)	£19
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Granny's Garden (floppy) (4M)	£27
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Rosie & Jim - Jim gets the sneezes	£10

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APR 97

Are you being served?

IT HAS been said that in every person there is at least one novel waiting to be written. Perhaps today's would-be novelists have in them some World Wide Web pages waiting to be woven. Most Internet service providers offer free Web space for customers to try out their HTML publishing pens, but there is a possible alternative to Homepages servers.

A number of Freeware, Shareware and low-cost commercial Web (http) server software packages are available for Acorn 32 bit computers which allow network users and many dial-up Internet account holders to set up a personal WWW site actually on their own Risc PC. In essence, Hypertext Transfer Protocol or http requesting works like this.

Http requests a Web page to arrive at the http server on the network from some Internet user's Web browser client like *ArcWeb*, *Webite*, *Fresco©* or *NetScape*, in the form of the URL (Uniform Resource Locator) clicked on by the browser user.

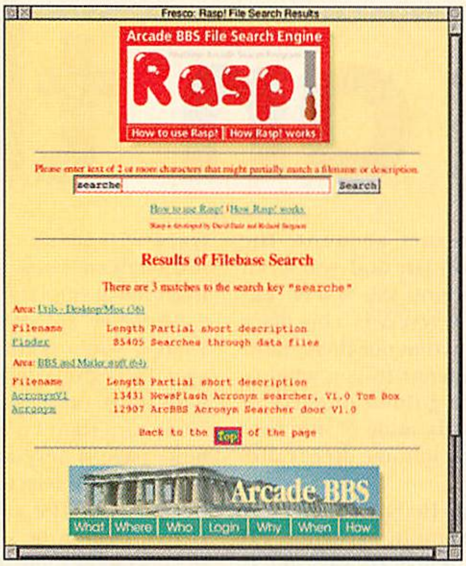
The http server finds the HTML file pointed to by the URL and sends back the HTML contained in it, followed by any image files referred to in the code.

As an example, the Arcade BBS Weekend Web site runs on Chris Poole's shareware *AlphaNet* Internet servers package. *!SlipDial* and Acorn's *!Internet* 'stack' are used to establish a modem-to-modem link with Demon Internet, costing about a penny a minute. *Acornet* or the *ANT© Suite* could be used just as easily to make the connection.

As soon as the connection is established, AlphaNet is run and it listens for any http or FTP requests coming in down the modem connection with Demon.

AlphaNet is configured with details such as where our pages and files are on the hard discs, how many concurrent connections we want to allow down the 33.6kbps modem link and so on – setting up can be quite complicated, but for our system most items are the default settings.

AlphaNet serves incoming requests for our Web pages including those that list all the files in the BBS filebase. AlphaNet's built-in FTP server sends out the files whose names have been clicked-on to the remote user's computer. We've be able to develop a file search engine using AlphaNet's cgi-bin script function which will send back a list of files matching a given keyword entered into an HTML form CGI stands for Common Gateway Interface. cgi-bin scripts are plug-in programs that can output HTML code directly to produce page counters and other dynamic effects such as Web chat pages and search engines like the one above. Using CGI scripts a Web BBS would probably be possible.



I know I had some matches somewhere...

Information about this and other http server software is available on the Web from the following sites:

- AlphaNet/DeltaNet (Shareware) by Chris Poole: *http://triton.chu.cam.ac.uk/*
- HTTPServr (Freeware) by Stewart Brodie of ArcWeb fame: *http://ftp.dsse.ecs.soton.ac.uk:8080/ftp/freenet*
- NetPlex (Shareware) by David Thomas: *http://java.cms.livjm.ac.uk/cmsdthom/apps/net.html*
- Navaho Internet Servers (Commercial): *http://www. navaho.co.uk/*

These Web sites have other interesting software on offer too, such as the Navaho *!WWWCache* proxy and caching Web server, David Thomas's Freeware collection, Stewart Brodie's and others' FreeNet applications in the Southampton archive and Chris Poole's Disc Editor.

So you don't need a Sun Sparcstation to host a Web site. All you need is a Risc PC, a university network or a fixed-address Internet account with an ISP like Demon, and one of these excellent Web server software packages. Oh – and a paid-for leased line would be nice...

Local call bonanza

Net newshound Stuart Halliday of the Acorn Cybervillage reports that BT really are planning new domestic customer options to include free local calls for launch this year. In turn, the ISPs may then have to raise their prices to cover their investment in more modem access lines from the telcos. Is that how BT will get their money back?

HotNet
http://www.cybervillage.co.uk/acorn/

Contacting me

Keep sending interesting URLs for the next yoUR List to me, David Dade by e-mail to david @arcade.demon.co.uk, or mail #2 on Arcade BBS 0181-654 2212.

Where there's a Wlf

Sysop Dane Koekoek reports that his Werewolf BBS now offers modem connections at 33k6bps, free e-mail Gateway facilities via the werewlf.demon domain name and the latest demos of Werewolf Software hits, *CDtracker+* and *T.A.N.K.S.* can be downloaded from the BBS file areas. Werewolf BBS is online 24 hours and is now the FidoNet Nynex hub for London, 2:254/5000.

Werewolf BBS
0181-289 6003
http://www.werewlf.demon.co.uk/bbs.html

Flashy new Sportster

US Robotics latest Sportster modem now sports flash memory, enabling owners to download a free upgrade to the new x2 56kbps technology from the US Robotics Technical Support BBS. The Sportster Flash priced at £229 inc. VAT has all the features of the Voice 33.6 model, with a five year warranty and free trial offers from several online service providers. x2 technology will also be available for download free for existing USR Courier V.Everything Flash-ROM modems, and it's worth registering with the USR Support BBS for the mine of information there.

US Robotics Support BBS
(01734) 692200
http://www.usr.co.uk/

Bransyeo BBS born

Yeovil, Somerset is the home town of student Richard Branson, and his new Bransyeo BBS is designed to show off what can be done with ANSI art and animation. The system runs ArmBBS software on a Risc PC 700 and a Sportster 28800bps modem and has a dedicated phone line for 24 hour access. Callers and uploads are what builds a BBS and Richard welcomes both.

Bransyeo BBS
(01935) 434100

UK demo party

The first Acorn-only demo party will be held on 5th July as part of the 'Acorn Southeast Show' taking place in Welwyn Garden City, Herts. The party, entitled Revelation, will include demo, graphics and music competitions. Revelation should be quite an exciting event for the UK demo scene, and will be of interest to coders as well as demo fans. The organisers would like to gauge support for this event, and anyone interested in either helping out or entering a demo in the competition, can get in touch at : rev@digibank.demon.co.uk. Full information on the event can be found at: http://www.digibank.demon.co.uk

Coders Revenge

The new issue of *Coders Revenge* has been released despite fears over its future following the break up of the Archiologics. As is usual for CR, issue 01/97 is a good read for demo fans and is available from the Acorn demo site at: http://sidonie.imag.fr/AcornDemos/

Newsflash

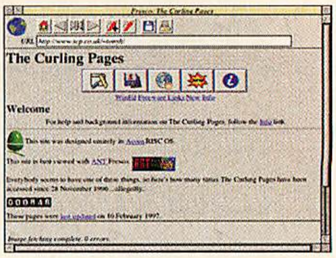
Here's a belated mention for Chris Davis's BBS software. Chris says Newsflash offers 'a highly versatile script language giving full control over displayed output'. The software is shareware with a registration of £10. For more information contact Chris by e-mail at: christsi@central.susx.ac.uk

DFI news

DFI, the group that brought us the *Fishtank* demo, is working on a new coding tool for assembler fans. The program is a compiler for an infinite register ARM instruction set machine. Paul Thomson of DFI explains, 'This takes standard assembler listings with label names instead of registers and deals with all the spilling of variables to memory, when too many are present at once.' It's not yet completed but early test compilations show remarkably similar performance to hand crafted routines (that obviously take much longer to code). More details on this interesting program when it's released. Contact Paul at: pat@dcs.ed.ac.uk







PD on the N

You've got your Internet account, the browser is on the icon bar and you're all ready to go and trawl around the WWW. But just wait one moment. The WWW is a big place and there's a lot of information out there, most of which will be of no interest to you whatsoever. To help find those golden nuggets of Acorn PD among the muddy mine of info that is the Net, here is my guide to some decent sites you'll be glad to visit.

First up is the infamous Hensa (1), arguably the most comprehensive site in existence. PD can be searched for in a number of ways and is always easy to find and responsive to use. The downside is that the site is accessible only from UK Higher Education establishments. Fortunately all is not lost for other users. Help comes in the form of Demon Internet Services. Their site (2) not only has a collection of regularly updated applications, ranging from Internet tools to games and demos, but they also provide a mirror of the Hensa site allowing access to all the software there as well.

If you still can't find what you're looking for, there's one last general 'get everything' site to try. The University of Stuttgart, Germany has a massive set of Acorn related software on its server (3) and it's here that software usually gets uploaded first. The essential place to check is the riscos/newsoft directory, where new software will be stored for up to six months. Although sometimes slow to access, the site is mirrored at Imperial College London (4).

So we've got some big download sites but what if you'd prefer something easier to manage? To begin with, you wouldn't go far wrong with the Acorn Cybervillage (5). This tries to be a one-stop shop for all things Acorn related (the news page is very up-to-date) and has a rather nice specially selected set of software to download. All of the software is linked back to Hensa, Demon or Stuttgart so it may be easier to go straight there but it saves some time to get someone else to select the quality PD.

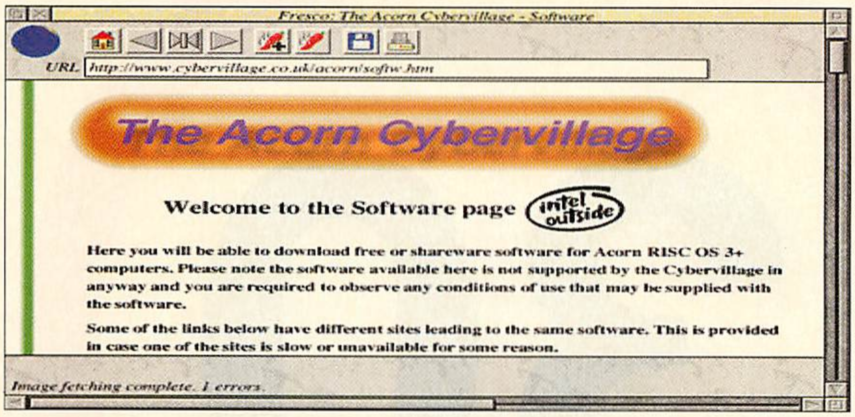
In a similar manner Jon Aylwin has put a lot of time into compiling an alphabetical list of software for his site (6) and very comprehensive it is too. Again the software is merely a link to another site but it does give one target for your browser to check if any new software has been released.

The final way to get software is to go directly to the author's pages. In this way you can get updates far quicker than if you wait for a kind soul to add a link to their page or upload them to a general site. There are a lot of Acorn authors in our corner of the Web and we've only got space to mention a few (apologies for omissions). Sergio Monesi (7) offers up disc utilities, Tony Houghton (8) and Paul Vigay (9)

Web addresses

1) *http://micros.hensa.ac.uk/micros/arch/riscos/arch-riscos.html*
Has almost everything ever released (except games)
2) *http://www.arcturus.demon.co.uk/ftp/*
Quick to access, mirrors hensa and has PD games
3) *ftp://ftp.uni-stuttgart.de/pub/systems/acorn/*
First to get a lot of PD
4) *ftp://src.doc.ic.ac.uk/computing/systems/ archimedes/collections/uni-stuttgart/*
Fast mirror, mirrors other sites too
5) *http://www.cybervillage.co.uk/acorn/softw.htm*
PD and other useful resources
6) *http://www.personal.u-net.com/~aylwin/soft.htm*
Offers a different approach to getting software
7) *http://cdc8g5.cdc.polimi.it/~pel0015/*
Latest releases of Fsck
8) *http://www.tcp.co.uk/~tonyh/*
Get Bombz and WinEd here
9) *http://rainbow.medberry.com/enigma/shareware. html*
Get the VZap virus killer here
10) *http://box.argonet.co.uk/users/miskin/*
Graphics/Utilities a plenty
11) *http://web.inter.NL.net/users/J.Kortink/*
Updates of his graphics applications
12) *http://www.ed.ac.uk/~simh/sjpd.html*
!Pdtracker and other utilities
13) *http://www.datafile.demon.co.uk/*
Software mentioned on these pages

et



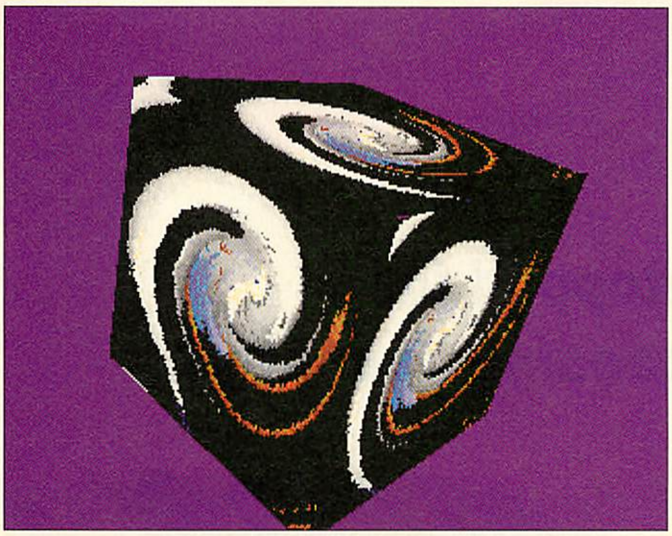
give us a selection of their shareware and Rosemary Miskin (10) has written so many applications that I couldn't possibly list them all.

If you want to find graphics you could nip over to the John Kortink (11) page and for sound, SJPD (12) regularly updates *PDtracker*.

And finally, before you go back to your browser, take a look at the Datafile WWW (13) page. It allows access to some of the PD mentioned on these pages. Good surfing!

Stuart Lovegrove

Insanity



FOLLOWING the reviews of previous Yelling Jam Party competition entries, this month sees the final release of Expression's *Insanity* intro. Watching the demo for the first time you easily forget that this production has been amazingly packed into 64 kilobytes. There's no shortage of routines, graphics or music, illustrating the skill with which this production has been put together.

Insanity begins with a few basic effects to set the scene, then launches into some sprite rotation and warping. Just as you're beginning to get bored, coder Skoe maps the main effect onto all the sides of a massive cube and spins it around the screen. A few little transitions later and you're watching a nicely shaded cube spin in front of the group's greetings while it morphs into different shapes. The following section uses the same object but adds a large number of trails that fade into the background. Very technically impressive – Skoe certainly knows his stuff.

After some more vector objects and a rather slow Wolfenstein-like section, a realtime mandelbrot zoomer leads to the end of the demo, with the exit a bit on the abrupt side. As far as coding goes, this is an excellent intro but the bitmap graphics do let it down a bit. The cow sprite being particularly on the cheesy side.

As usual, guest contributor Cry, does a good job with the music, given the very limiting constraints on sample size. He almost manages to stop it sounding like a chip tune, and for a 64K intro with lots of space taken by graphics, that's good work.

Insanity (along with *Jojo*, reviewed last issue) is now available from the Acorn demo site. It can also be found on disc DM150 from the Datafile PD Library.

Recommended PD Libraries

- The Datafile, Willoughby House, 89 Woodville Road, Boston PE21 8BB
- Naked PD, 'Fayence', Fulford Rd, Stoke-on-Trent, Staffs ST11 9QT
- Arch Angel PD, PO Box 41, Exeter EX4 3EN APDL, 39 Knighton Park Road, Sydenham, London SE26 5RN
- Five Star Marketing, 4 Shepherds Walk, Bushey, Hertfordshire WD2 1LZ
- Beebware PD, 83 Forrest Road, Huncote, Leicester LE9 3BH
- ARM Club PD Library, Freepost ND6573, London N12 0BR
- Risc World PD, daniel.hayes@argonet.co.uk

Holocaust

Following all the games section hype about the new commercial game *Tanks*, Graham Crockford has pointed out that his *Scorched Earth* clone is PD and can be obtained from the Datafile on two DD discs. The game is 'Postware' for registration but is not yet available on the Net. Contact Graham for registrations at: gcrockford@enterprise.net

PDtracker

Simon Hatliff's excellent *PDTracker* application has reached version 4.55b and features improved StrongARM compatibility and a number of bug fixes. The front end program incorporates players for every music format imaginable, from which it selects the most appropriate for playing a particular music mod. The control window has to be one of the most attractive and functional around, with a realistic looking mock LCD display. PDTracker is on Simon's Web page at: http://www.ed.ac.uk/~simh/pdtracker/

Traffic 2

Mike Smith has updated his *Air Traffic Control* game, reviewed in my December '96 column, to version 2. Drawing on feedback from registered users, Mike has incorporated a range of new features including save/load, time compression, compass, extended time and a whole host of other improvements. The upgrade from version 1 is available to registered users for only £3.25. The original game is still available as shareware for £9.99.

Mike is currently working on a U-Boat simulation and is interested in developing more simulations for the Acorn. If you'd like to provide some suggestions, contact Mike at his new address: 436 Nottingham Road, Giltbrook, Eastwood, Notts, NG16 2FN.

Contacting me

You can contact the PD page by writing to me, Paul Wheatley, at Acorn User, IDG Media, Media House, Adlington Park, Macclesfield, SK10 4NP. Or preferably, by e-mail to aupdpage@idg.co.uk.

Joy for joystick fans

JOYSTICKS and Acorns haven't had a very close association over the years. To the surprise of many owners, most Acorns never had an interface built in. By contrast, any game-capable PC with a sound card is automatically joystick compatible via the sound card's connector. Therefore while relatively few Acorn owners boast joysticks, many PC games use them. So what do you do if you want a joystick for both Acorn and PC games?

The answer seems to be to turn to Stuart Tyrrell. As I mentioned in my last column, Stuart has developed two interfaces, the Solo for Atari-style sticks and the N'interface for Nintendo type games pads. I've tried the Solo interface which is built into a D-type connector block that plugs into the Acorn printer port and offers a socket for the joystick. Also essential is the driver software which allows you to configure the joystick such that movements and button presses emulate keyboard keypresses. Obviously these need to be set to suit the game you want to play. That sorts out the Acorn side of things but doesn't offer a solution for PC card users. Well, Stuart has now solved that problem too with a patch to *!PC* that allows it to hook up to a joystick if one is connected.

I'm very pleased to report that I've had no problems with the system and it works well. And I can think of no better compliment than to say it does what it intends to do without fuss or drama. Nice one Stuart.

In fact Stuart now offers an almost bewildering array of possible solutions to joystick needs – he'll supply complete solutions or upgrade your own devices. And for STD-stick owners he offers the software upgrades free of charge – what more could you ask?

There are a couple of provisos. The first is that you may land up not being able to use the printer port unless you want to give up printing or be forever switching over plugs – you will be tempted to buy a switch box. If so, bear in mind that while the joystick isn't fussy, the printer may well need to have all its lines switched through especially if there's anything using a dongle. So make sure both the cable and the switch box do connect every line – many, especially the active ones, do not. Luckily, Stuart can help here too with both boxes and cables. So if in doubt – ask.

The other proviso is that at present the system is designed to cater for switched, on/off type joysticks whereas many PC games now expect an analogue device with outputs that can give fine position information. All is not lost. Stuart isn't resting on his laurels and while at the time of writing plans aren't yet finalised, I can say that he is busy working on an analogue interface for the Acorn (which could well be available as you read this) and using my trusty crystal ball, I wouldn't be surprised if that too will be accessible from the PC: Watch this space.

Stuart Tyrrell is at STD, PO Box 183, Oldham OL2 8FB. Tel: 0976 255256 (Orange) E-mail: Info@STDevel.demon.co.uk or look his products up at http://www.stdevel.demon.co.uk

Great news for DOS gamers

PC CARD users will not need me to tell them that one of the single most annoying frustrations is not being able to run many DOS titles, notably games. There are various reasons for this but a common one is the inability of the games to find the sound output. Some games, such as *Command and Conquer*, can be persuaded to work provided the sound is turned off. But then you don't know what is going on and you miss out on those noises when you zap the opposition!

There is now a solution to this problem. R-Comp have made it part of their mission to sort out the problems between games and the !PC/Acorn sound system – and they've succeeded. Their solution is a piece of software called *PC Sound Professional* and it's available now. It helps many a program hook up to both the Soundblaster emulation and to MIDI if you have it.

Now I can't pretend to follow the internal workings of the software but it's important to understand that there isn't a general solution to the problem – if it were that easy, *!PC* wouldn't need PCSoundPro anyway. The problem stems from the lack of standards within the DOS world and when anything goes (provided it works), anything could happen. That causes enough problems in genuine PCs. It's a real headache for Acorn PC card users. It also means that PCSoundPro isn't a complete solution in that there are programs it won't fix.

Having said that, the list of programs it does fix runs to about 80 now and is growing all the time, I'm told 100 is a reasonable target for the near future and more will be added in time. Just a few from the present list include Command and Conquer (inc, *Red Alert*), Discworld, *Doom (&D2), Duke Nukem, Links LS, MechWarrior, Star Trek* and *Worms*. R-Comp supply a list of titles and the settings needed to get them up and running – setting such things as IRQ number and the DMA channel may sound complicated but once you know what to do, it's quite simple.

Of course, just because your software isn't on the list doesn't mean it can't run with PCSoundPro, it may be that no-one has even tried it and spent the time experimenting with the right settings – which sounds like a good way to while away a few hours! And if all else fails and you can't get your new title to run with PCSoundPro, you could give R-Comp a ring.

To make the most of PC Sound Professional, you'll need 16 bit stereo output (RPC700 or 600 with a sound card) and a MIDI synthesiser – either hardware or a software MIDI synth such as ESP's.

PC Sound Professional costs £30 from R-Comp Interactive on (01925) 755043, 22 Robert Moffat, High Legh, Knutsford, Cheshire WA16 6PS. E-mail: rcomp@arsvcs.demon.co.uk

Sounds about right

If like me you've been annoyed by the way your sound drivers drop out every time you install a new program in Win95, the solution is available at Aleph's Web site. You need the new SBE/inf file which fixes the problem. It's at http://www.aleph1.co.uk.

Also on the same site are the ASPI drivers for accessing demountable media and such things as scanners. These are being improved all the time and now boast 16-bit Windows support too.

Aleph One tells me it has taken on extra staff to accelerate development of !PC. Projects include ongoing support for ESP and R-Comp's sound developments, a 32-bit CD driver to support long file names under Win 95 and various other fixes and improvements.

Sadly full DirectX support isn't likely for a while yet – but we can hope.

Aleph One Ltd

Tel: (01223) 811679

Quicker cards

I see that CJE Micros is continuing its quest for speed with the development of an even faster 133MHz card – the speed increase is gained by virtue of a larger cache. I haven't tried it so contact CJE Micros for more information.

CJE Micros

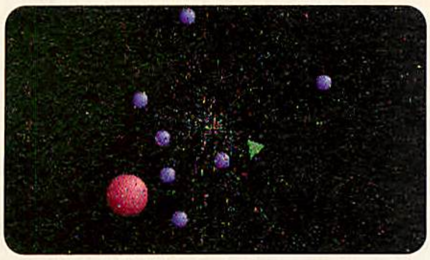
Tel: (01903) 523666

Contact

You can contact me, Mike Buckingham, by post at the usual *Acorn User* address or by dropping me an e-mail at: *aupcpage@idg.co.uk*

Spheres of Chaos

Iain Macleod





WHEN *Spheres of Chaos* has loaded you are presented with the main menu and a pointer that is moved by the mouse. Moving the pointer over the words displayed will highlight some of them. Clicking Select will take you to another menu or start the game. Pressing the space bar at any time will also start the game.

Pressing Select will change words or increase numbers on menus. Clicking Menu will change words the opposite way to Select or decrease numbers.

How to play

This is really quite simple. You fly around the screen, shoot things, and try not to crash into them. Every 10,000 points earns you an extra ship.

Bump into the triangles to pick them up. Depending on the colour you will either get a bonus of 1000 to 3000 points, some special power-up, or a strange effect.

Pressing Left Control+Escape during a game returns you to the main menu. Pressing Left Control+Escape from the main menu returns you to the desktop. The game attempts to save the highscores when exiting, to the place the game ran from. You can skip this by pressing Escape.

If there are lots of objects and Black Holes on the screen, and you are using 8 channels sound, the game can get a bit slow. Reduce the sound to 4 channels or turn it off using f6 and things will improve.

The Control Menu

Change the number of players by clicking on the number. For each player you can change:

- The colour of the ship by clicking on it
- The control method by clicking on the word Mouse/Joystick/Keyboard
- The rotation speed of the ship by clicking on speed
- Which joystick is used by clicking on the number
- The keyboard controls

To change a key, point at one of the five keys. When it has been highlighted press the key you want to use on the keyboard. From left to right they represent: Turn anti-clockwise, Turn clockwise, Fire, Thrust, Hyperspace.

The mouse is the best control method. There are two mouse options: Moving the mouse left and right rotates the ship. Move the mouse forward quickly to Hyperspace. Backwards has no effect. The mouse buttons from the left are Fire, Thrust and Hyperspace. Or as above except that moving forward and backwards has no effect.

Joystick left and right rotates the ship, the fire button shoots bullets. Up is Thrust. Down is Hyperspace.

If you are using an interface that supports two independent fire buttons — Magnetic Image FOUR and Gamer's Upgrade interfaces — the second button is Thrust. Down has no effect. To use joysticks you must load the module that came with the interface before you run the game. If you have built-in joystick ports you don't need to do anything. Chaos supports several interfaces: Magnetic Image's FOUR; Serial Port; RTFM; Acorn standard; Gamer's Upgrade; and Magnetic Image's FOUR+FOUR. Dongle and driver available on request from Magnetic Image, to connect eight joysticks to an Arc at once.

Variations Menu

This menu allows you to customise the game. Objects, ships and bullets can be set to bounce off the sides of the screen. You can also have gravity, turn off the clearing of the screen and adjust ship and bullet interactions. Ships can either not interact, bounce off each other or blow up when they collide. Bullets hitting ships can do nothing, give the ship a push or destroy it.

The game type can also be varied:

- Normal means no ship or shot interactions. The game is over when all players are dead.
- Team means there is only one score and spare ships pool for all of the players. The game is over when all the ships are destroyed and there are none spare. If there are no spare ships then the player has to wait until the others earn another spare before reappearing.
- Enemies means try to destroy each other. The game ends when there is only one player left, who is the winner.
- Duel means ships only with no objects to shoot. The game ends in the same way as in 'Enemies'. When two remaining players with no spare ships crash into each other they are both replaced and the game continues.
- Race players race against each other to a predefined target score. The scores are displayed as bars. When the target is reached the finishing position replaces the score bar and the ship vanishes.

Difficulty Menu

The overall game speed is normally 5, a value of 1 is half the normal speed and 9 is double the normal speed. Each type of object has an initial amount for each level. This can be varied by selecting:

- None - none of the objects appear
- Less - half the normal amount
- Extra - double the normal amount
- Hordes - three times the normal amount plus some extra

For Bugs and Black Holes the value controls the frequency of occurrence rather than the initial amount.

Sound Menu

Control is provided over:

- Speaker on/off
- The number of sound channels and the volume

The default setting is speaker on with four channels. Eight channels may slow the program slightly (ARM2, ARM250). Everything moves at the same apparent speed but the screen is updated less often. Conversely 'Off' improves the frame rate and the special effects. The function keys displayed can be used at any time. Unfortunately the 'volume' keys don't autorepeat, so you will have to press them many times. You can pause the game while you adjust the volume.

The sound is best played through an external stereo amplifier. All the sound effects move around in stereo. Play it loud.

Also in this menu, Load, Save and Restore. Click on 'Setting' to select the file to load/save, Settings1 to Settings9. These files load/save to the !Chaos directory, and Settings1 is automatically saved along with the highscores when you exit the game. Click 'Load' or 'Save' to do the obvious thing with the file. Click 'Restore' to reset the games default settings. This does not load, save or alter any files.

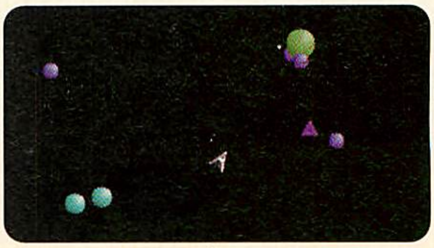
New bits

This version of Spheres of Chaos has been updated for *Acorn User*. It works in different screen modes. To change mode, go to the Screens menu. Click on the mode number or the x/y sizes to change them. Click on 'Set' by the mode number to change to that mode, or click on the lower 'set' next to Risc PC mode to use the x/y sizes. This only works on a Risc PC or A7000 and a 256-colour mode with those x/y sizes must be defined in on your machine.

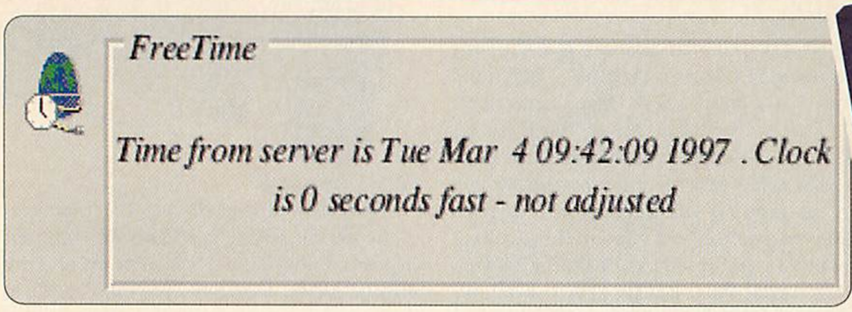
If nothing happens the mode doesn't exist, has the wrong number of colours (256) or can't get enough memory. If the display is very flickery it means only one screen bank exists, due to lack of memory. The game uses two alternating screens. The largest screen useable is 2048*2048, although Acorn machines can't display it yet 1600 * 1200 works, with only 1 screen bank.

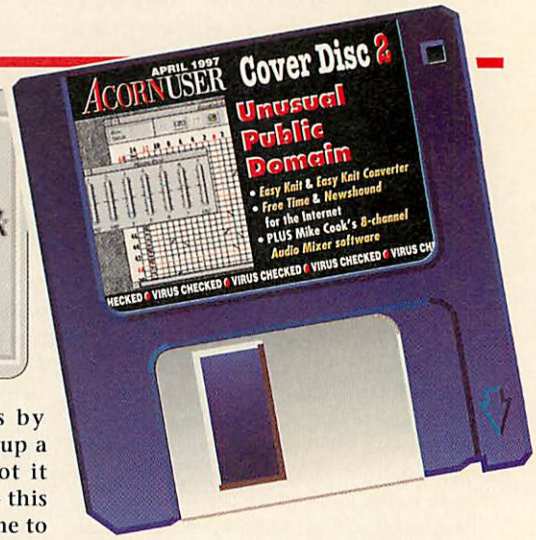
There is some speed compensation for modes with different frame-rates, but not everything is done. The total number of objects can be set, from the difficulty menu. Click on Things.

Have fun.



Freetime
Joseph Heenan





FREETIME is a simple program that uses the Internet time protocol to read the time from a remote time server. Once the time has been read, it will compare it with the time on your local computer. If the times differ by less than a specified amount, (5 seconds by default) it doesn't set your computers clock.

If the times differ by more than a specified amount (120 seconds by default), then FreeTime will bring up a window enquiring whether or not it should set your computers clock — this is to guard against it setting the time to something totally wrong.

Otherwise, it sets your local clock so that it agrees with the time from the remote server, and brings up a window saying to — which disappears either after 5 seconds, or when you click on it.

FreeTime quits once it has completed its job.

Newshound
Joseph Heenan

THIS is a public domain news fetcher that can replace the usual Freenews program and is used in conjunction with the !Newsbase 0.58 and !Messenger 0.28 applications. !Newshound won't work with the older !TTFN news/mail reader because it does not have support for header-only news articles.

Other applications needed are !SysLog 0.15, a TCP/IP internet stack (such as FreeNet or the Acorn stack).

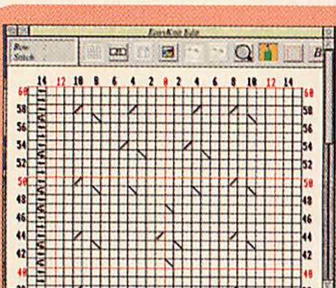
Full information on how to set-up and run Newshound are included with the application, please make sure you read them carefully first and have all the necessary software to go with it.

Menubar 2 demo
Graham Crow

THIS demonstration version is restricted to five Bars, and each Bar is limited to five Menus containing up to three Objects. It is complete in all other respects.

Copy the !MenuBar application from the disc to your hard disc. Run the program by double-clicking on the !MenuBar icon and a window appears informing you of the restrictions which apply to the demonstration version, and how you can order the full version. Click OK.

Full details of how to use MenuBar 2 are given in the Help file within the application, including a Registration Form for ordering the complete version.



EasyKnit

EasyKnit allows you to produce textual patterns from sprites and drawfiles for use in knitting pictures into garments

Regular items

- First files for our new 3D game series
- Free Ads — all our Free Ads on disc
- Bucketloads of *INFO from graphics to games
- Mike Cook's eight channel audio mixer

Disc information

The software on these discs has been compressed using ArcFS 2 from VTi, and are opened by running a copy of ArcFS then double-clicking on the archive to open it. There is a copy of ArcFS on each disc.

Most software will run straight from the archive, but some programs may need to be copied out of the archive before being run, uncompressing them in the process. Any program that saves a file to disc, for instance, will be unable to do so into the archives on the disc.

Faulty disc?

If your disc is faulty, test whether it will verify by clicking with Menu on the floppy drive icon and choosing Verify.

If it fails to verify or is physically damaged you should return it to TIB, TIB House, 11 Edward Street, Bradford, Yorkshire BD4 7BH. If it verifies successfully return it to the Acorn User editorial office at the usual address.

The Acorn User cover discs have been checked for viruses using Killer version 2.500 from Pineapple Software.

Acor

V i r t

In a new series of articles, **Greg Scott** explores the techniques behind first-person video games

For those of you who don't recognise the term *first-person video games*, take a look at the current hits in the non-Acorn computer gaming world. Gone are the days of chasing meteors in *Asteroids*, blasting aliens in *Space Invaders* or hitting balls during *Pong*. Modern computing has brought new genres of gaming to the user, engulfing us with breath-taking graphics, digital sound, full-motion video, and all at pace previously unimagined by players of the 70s and 80s.

Whether it be a tussle with *Doom's* beasts or a battle against Hitler in *Wolfenstein 3D*, we now find ourselves amazed by the realism of today's games, and wonder how we were ever satisfied by the 2D bat and ballers of the past.

In this series we'll be looking at the programming techniques required to create a game such as Wolfenstein 3D – to play (and enjoy) on your Acorn. What's more, by the end of these articles, you will have the knowledge to create your very own virtual world – to run, shoot and quiver in – while surrounded by your own hand-coded monsters.

Background

When I first planned these articles, I began by explaining the basics of plotting to the screen, using coordinates and generally describing the idea of 3D graphics on an Acorn. However, half an hour into the first article I discovered that the product wasn't quite as I had pictured — the "exciting journey" into the creation of first person computer games had turned into a memory test of O-Level Mathematics.

So we'll leave the basics and the irrelevant background work behind for something much more "upbeat". Do not fret if you are of a nervous disposition – I shall not be plunging quite into the deep end but we do still need our basic tools.

Throughout the series, the articles will describe the techniques and ideas in discussion, including diagrams to explain such concepts and source code to put them into practice. It is this last feature which requires something from you – simple knowledge of the C programming language.

1	3	3	3	3	3	3	3	3	3	1
1				3	3	4	3			1
1										1
1			2	2	2	2	2			1
1			2				2			1
1			2				2			1
1			2	2			2			1
1							2			1
1							2			1
1			2	2	2	2	2			5
1						2				5
1			2							5
4	4	4	4	4	4	4	4	5	5	5

Figure II: How our levels will be represented

All right, so at the moment all of the Basic and Assembler programmers owning an Acorn are yelling out in objection.

It's common knowledge that C is not the fastest language in the world but it is certainly a preference over others because of its simplicity.

It is not the aim to create the fastest, noisiest, most graphical video game since Doom here, but rather to give you a fundamental understanding of the many techniques involved in creating such a game. C is the perfect tool for doing this.

Therefore, although conversion is not out of the question, you will almost certainly need a C or C++ Compiler for

Figure I: Some C and ARM Code functions from "our_lib.h"

#our_lib.h#v.1.00.ourlib_changemode	:	sets Screen Mode
.ourlib_wait	:	Time Delay
.ourlib_killcursor	:	remove Cursor
.ourlib_revivecursor	:	show Cursor
.ourlib_fastclg	:	clear screen (fast)
.ourlib_waitvsync	:	flicker-free function
.ourlib_fade_out	:	fades out screen
.ourlib_bitmap_grab	:	grabs graphic from screen
.ourlib_bitmap_plot	:	plots graphic to screen.

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your Acorn. Any will do – Easy C, Acorn C or GNU C.

For those Assembler programmers still whining at such a thought, I will be including a few functions programmed in Assembler for use in tasks such as plotting shapes and clearing the screen...

For any non-programmers reading, it will be possible to design your own levels and graphics without writing any code at all. Only a text editor (such as *Edit*) and an art package are required (*Paint* will do).

The basic library

It's common knowledge to many of the programmers reading this article, that code (of any language) these days isn't written as it used to be. We can save ourselves a lot of time by using a collection of pre-written functions called a library. Libraries are an excellent time-saver, leaving the programmer to get down to the nitty-gritty functions, and not having to worry about more simple tasks such as plotting text or clearing the screen.

Our library — appropriately called *our_lib.h* — will provide the same service. If we ignore the vital functions (which our library does for us) we can spend more of our time concentrating on the underlying code inside our graphics "engine". It will soon become apparent that our library is to save more than a few lines of explanation. Who wants to know how to plot squares anyway? We want to make rooms! The source code will be included on the cover disc from next month – we don't need it this month. Some of the functions provided by "our_lib.h" are listed in Figure I.



Are these the ultimates we're looking for? The PC hit *Duke Nukem 3D* and the current blockbuster *Quake*

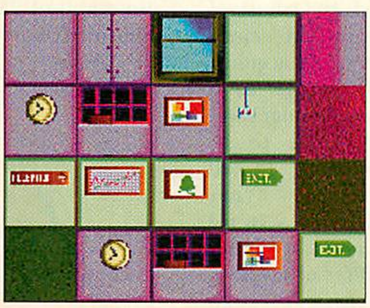


Figure III: The graphics to be "mapped" onto the walls

In the beginning...

Let's face it. We aren't going to be able to use the very latest techniques in our game, frankly no-one can. This is simply because faster and more powerful programming concepts are being discovered every day. These new methods, though very capable, are certainly not easily understood so you will therefore understand me when I say we are aiming at something less intensive.

Our creation, like Wolfenstein, will consist of flat levels made up of rooms, corridors, doors and, eventually, objects. The task of representing these features is fortunately an easy one.

Figures II and III are examples of all that is needed to define a level in its most empty form — walls only. By using this simplistic method of level design, anyone can reel off a range of mazes in no time. The grid of numbers in Figure II (created in any text editor) is similar to a plan view commonly found on an architects drawing board – illustrating the position, type and angle of walls. Our file provides similar information: the layout of the numbers defining the locations of walls and the numbers themselves representing the type of wall in that location.

Figure III, created with Paint, shows a Mode 13 screen (320 by 256 pixels) containing twenty "tiles" (64 by 64 pixels each). These are the graphics which are "mapped" onto different walls. Figure IV shows which tile belongs to which wall number in the plan, giving us a total of 20 different types of wall – plenty for even the toughest of levels. Putting all the tiles onto one single screen-sized graphic saves us a lot of

Acorn Virtuality

effort – loading them all in separately would be a lengthy process.

In our game, the numbers in the plan file behave rather like electronic Lego bricks – they look the same from all four sides.

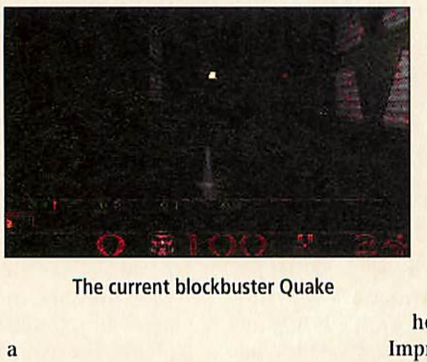
As an example, look at the group of 2's in the middle of Figure II. If the player was in the space between them, he would be surrounded by walls "painted" with the graphic represented by tile number two in the sprite file (Figure V). As he moved out of this "twos room" he would find himself in a corridor, facing a different wall – that depicted by the first tile in the sprite file, number one.

In our game the world will measure 64 by 64 blocks (numbers), each consisting of a graphic of dimensions 64 by 64 pixels. The reasons for such a representation will become clear next month. For now, it's best to accept that the tiles method is going to save us a great deal of time in the future.

Level design

If you already feel the need to conjure up a level of your own, go ahead. But in order to make life a lot easier when it comes to drawing the three dimensional version, it would be wise to follow these guidelines on designing your world and appropriate graphics:

- The world in our game will be 64 by 64 numbers in size (a total of 4096 blocks)
- Corridors should be two spaces wide, a width of only one is too thin for even the smallest of players
- When drawing the walls in an art package, I recommend loading the "wallsblnk" file from the cover disc and filling in the empty tiles (this will save a lot of setup and alignment work
- Remember that the one required sprite file is 320 by 256 pixels, consisting of 20 different tiles of size 64 by 64, in 256 colours
- An artist's tip here: Colour the tops of the walls slightly darker, and the bottoms lighter, to give a more convincing shading effect.



The current blockbuster Quake

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20

Figure IV: A grid showing which graphic represents each number in the world file

AU Attack!

Nodding at formulae and pressing numbers is one thing, but creating a whole application is a completely different kettle of fish. It is for this reason that we will – through the course of these articles – apply our newly acquired knowledge to a game of our own. A game to be named *AU Attack!* – "Your Mission – To rid the *Acorn User* offices of invading aliens, through three varying levels of heart-stopping action." Impressed? You will be.

Of course this is only a personal concept, I have no objections to any alterations you might wish to make during the next few months. Neither do I object to the use of my source code in a commercial release on the Acorn platform, though credit in a "ReadMe" file would be a polite gesture.

Next month

In the next issue, we shall begin to understand the concepts of generating a realistic first-person view, with a technique known as Ray Casting. In time for next month, have a few levels at the ready, you'll be needing them. Examine the levels on the Cover disc, of a typical office building – the setting for AU Attack. Any levels received through my e-mail account will be uploaded to a Web page for everyone to enjoy. I await your creations.

- *Send by mail to: Acorn User 3D, Acorn User, IDG Media, Media House, Adlington Park, Macclesfield, SK10 4NP or E-mail to: AUThreeD@aol.com Web: http://members.aol.com/AU ThreeD/*

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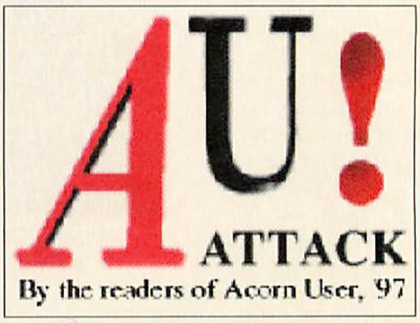


Figure V: AU Attack, our game to be

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	50 x £21.99	500 x £175.99
Bulk DSHD	10 x £3.99	100 x £29.99
	30 x £10.99	200 x £55.99
	50 x £16.99	500 x £129.99
Branded DSHD	10 x £5.99	100 x £44.99
	30 x £15.99	200 x £82.99
	50 x £23.99	500 x £189.99

Disk labels x500 £6.99
Disk labels x1000 £9.99



New drive on the block

Steve Mumford looks at Argo's Iomega Zip drive pack

There's a common phenomenon that plagues most computer users at some time in their career. That is starting off with a hard disc that appears to have several times as much space as could possibly be needed only to find a few weeks later, to their dismay, that it's utterly full. What's more annoying is that when trekking through the directory tree, *delete* icon at the ready, it's incredibly hard to find any files you actually want to dispose of.

The solution? Well, buying another hard drive – and in some situations where speed of transfer or contiguous free space is important, that might be the only option. However, for a lot of users, the Iomega Zip drive provides a welcome alternative. It takes what look like obese floppy discs, and in many ways it's best to think of it as an ultra-high density floppy drive rather than a second hard drive unit.

Arriving in something resembling a giant egg-carton, the Zip drive is supplied with a transformer (so another free power socket is needed), a data lead and a Zip disc plus a whole set of manuals. As well as Acorn-specific drivers and instructions, the pack contains installation tools for both the PC and Apple Macintosh, so it is not limited to using the drive just on an Acorn.

Installation is very easy, on the Acorn it involves plugging the drive in and loading an application from the floppy disc supplied. If there is a hard disc in the machine already, it's a simple matter of including the driver software in the boot-up sequence so that everything's loaded as a matter of course.

The model supplied plugs into the parallel port, but this shouldn't cause any problems since there's another port on the back of the drive to allow any other devices to be attached onto the end of the chain – the information is passed through the Zip drive automatically.

Once installed, using it is very simple. It behaves just like another hard disc or floppy drive and the icon bar application allows all the usual functions including formatting, dismounting and verifying to be performed.

There are a few minor differences. Dismounting actually ejects the disc from the drive automatically and to write-protect the disc, an option on the menu needs to be selected since this is controlled by software rather than hardware. The Acorn software can read and write to PC-format Zip discs as well as its own customised Acorn format. This might prove particularly useful to those who want to transfer large amounts of information between PCs and Acorn machines. Under the current version of the driver software (0.992, if you're interested), PC discs can't be formatted and it isn't possible to read or write Mac discs.

I was impressed by the versatility of the system. As an extreme example I set up a PC partition on an Acorn format Zip disc, then proceeded to install and run Windows 95 from it via a PC card. Although slower than usual, the emulation ran without fault and the drive coped with the continuous access perfectly. It's possible to install the Zip drive under the PC card, although make sure that you don't attempt to boot up the PC side with an Acorn disc in the drive, as this confuses the PC software and stops the card from completing its boot-up sequence.

I've noticed very few problems while using this system – admittedly, the software has 'lost sight' of the drive or disc from time to time, but I haven't experienced any major crashes so far. If planning to use the drive on a PC as well as Acorn, I'd suggest buying another disc immediately as the one supplied with the drive isn't blank and contains a lot of useful PC software.

Some people have touted the Zip drive to be a 'second hard drive' – whether this is to be believed depends on the average data transfer rate that the unit achieves. On a StrongARM Risc PC, the data rate is pleasantly fast – around 500 kilobytes per second. However, using it on an Acorn A5000 proves to be a more leisurely affair, transferring less than a hundred kilobytes per second.

I think this product is more suited to providing a form of 'off-line' storage, holding documents and less frequently used applications on Zip discs while keeping any critical systems applications on the hard drive. They're obviously very good as a medium capacity backup device and they hold the advantage that the backup remains in a form that's easy to access, unlike DAT tapes, for instance. One thing's for sure – Argo's Zip drive has certainly eased my storage problems – all I have to do now is remember what I've put on each disc. AU

Product details

Supplier: Argo Interactive Group plc
Price: £139 plus P&P for full pack including Acorn driver & 100 meg zip tools disc. Extra zip discs cost £11 each or £60 for six. Zip driver software is £29 (all prices ex VAT)
Address: 7 Dukes Court, Chichester, West Sussex, PO19 2FX
Tel: (01243) 815815
Fax: (01243) 815805
E-mail: sales@argonet.co.uk
Web: http://www.argonet.co.uk

Getting into C++

Tony Houghton delves into a selection of books about C++

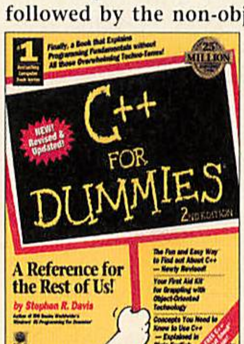
C++ has become the language of choice for most modern programming projects. Unfortunately, provision for C++ programmers on RISC OS is far behind most other platforms and we are crying out for a compiler that is easy to use and powerful at the same time, and class libraries for RISC OS to go with it. However, there are compilers available (the best being free) and despite the lack of libraries, C++ can still be better for developing some applications than C, especially if major development is intended to continue after initial release.

In this review I will look at a range of books spanning from beginner level to those who teach how to get the most out of OOP (Object Oriented Programming) techniques.

C++ For Dummies

I was pleasantly surprised by this book. As the title subtly suggests, it's aimed at the struggling beginner. A reasonable amount of experience of C is assumed; this is a bit of a problem with learning C++. On the one hand you don't want to learn procedural programming habits that hinder an object oriented way of thinking. On the other hand C++ is based very heavily on C, a language full of traps for the inexperienced user; pointers in particular can cause nightmares. On the whole it's probably safer to learn C first.

The book charts a fairly familiar course. The first part is the inevitable review of C, followed by the non-object oriented features of C++, then classes, inheritance and more advanced features. There are no exercises – instead you should follow the examples closely. A simple bank account program is used throughout and as the features in each part are learnt, the program is rewritten to use them. A disc is provided; it's high density, but the older A-series machines are ill-equipped for C++ programming anyway.



The author goes further than just to describe the syntax of the features. He aims to encourage good programming practice as he goes along and there are several handy tips, some of which will be helpful and important even to fairly experienced programmers.

The style isn't as condescending as the title, but the author has made an attempt to be humorous in a wacky sort of way that doesn't quite suit the subject. The humour extends to the subject headings but not so much that they are not descriptive. There are references to the main compilers available for PCs, but there is no problem with using the book with one of the compilers available for Acorns.

By the end of the book you will have

been given a good introduction to the language, but will soon want to learn more advanced features. The 'advanced topics' such as streams, templates and exceptions are glossed over to some extent and a professional programmer would probably need more detailed knowledge.

It makes no pretence at being any more than an introduction for beginners but there is a sequel, *More C++ For Dummies*, by the same author. However, after reading C++ For Dummies a programmer should find it feasible to go straight on to one of the advanced books that are centred on OOP rather than the language syntax after a bit of practice.

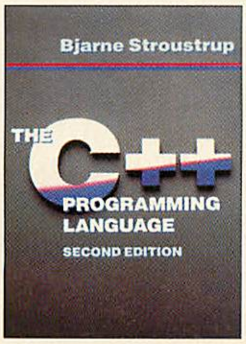
This book is fine for C programmers wanting to learn C++ easily, as long as they are aware that they will need to read further to become really proficient.

The C++ Programming Language

Bjarne Stroustrup is of course the 'inventor' of C++ so this book is considered by many to be one of the definitive works describing the language. In addition to the pure reference sections, the bulk of the book is taken up by tutorial material. Prior knowledge of C is not explicitly assumed but without it the book would be very difficult to tackle. At the end of most chapters there is a set of exercises which are helpfully graded so you can tell whether they might take a few minutes, hours or even days.

The first chapter is a tour of C++, briefly describing the features. Following chapters introduce basic constructs, functions, classes and derivation, operator overloading, templates, exceptions and streams. After this are three chapters about design, which I would consider to be vital reading before starting work on a real application.

The tutorial is followed by a 150-page reference section containing syntax rules in strict but brief detail. A syntax notation is used throughout this section. The rules behind the notation are very simple but, unfortunately, it does not make the reference easy to understand. Each definition is usually composed of a number of subdefinitions which leads to a lot of flicking around looking them up, making it difficult to build a clear picture from them in the mind.

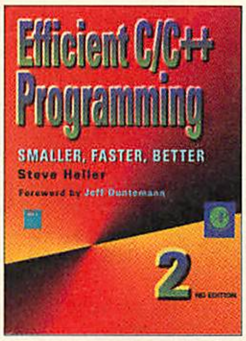


The book covers the current features of C++ very well but I feel that it is due for replacement soon. There is a short chapter on ANSI/ISO resolutions with discussion of some features that are yet to be standardised, such as namespaces and Run-Time Type Identification, but no discussion of standard libraries apart from streams. The bulk of the standardisation is now in a stable state but awaiting formal finalisation. Most compilers are now supplied with libraries that match (at least as closely as possible) the proposed standards, including the Acorn port of GCC.

Although it might be fair to say that *The C++ Programming Language* has been helped on to most programmers' shelves by the status of the author, it does thoroughly deserve to be there on merit. When I first wanted a C++ reference book I looked at the contents and summaries of all such books in the shops and decided this was at least as good as any other and fairly priced.

Efficient C/C++ Programming (Smaller, Faster, Better)

This title caught my eye because efficiency is something that seems far more important to Acorn programmers than those on most other platforms. The book wasn't quite what I expected. I was expecting to read about how to optimise code on a function by function basis, but this is all about efficient algorithms. That isn't a disappointment because most of the algorithms are generally useful and I will definitely be applying one or more of them in future projects.



Despite the prominence of C++ in the title it looks rather as if a C++ chapter was added as an afterthought and a few references to it sprinkled around the rest of the book so that a second edition could be released. The C++ chapter does little more than re-implement a previous algorithm, but at least it does re-implement it rather than just encapsulating the old C code in classes.

After Chapter 1's introduction to the concept of optimisation, Chapter 2 covers hashing, (using a key generated from an item's index to locate its details quickly), cacheing and simple text compression. Chapter 3 describes strip files (rearranging the data in a file so that it can be searched more efficiently), bitmaps (using single bits grouped to indicate a single condition of each record) and a distribution sorting technique which can be significantly faster than the renowned *Quicksort*. Chapter 4 describes some more advanced compression algorithms.

Chapter 5 is very topical to Risc PC users with StrongARMs who are finding that the speed increase for interpreted BASIC is much greater than for compiled and assembler programs. This part describes how some programs can be made faster by using an interpreter dedicated to the task instead of a general purpose language like C, relying on the small size of the interpreter and the tokenised code to fit in the processor's cache. BBC BASIC is generalised rather than dedicated to one particular task of course, so C and assembler programs are still generally faster than BASIC equivalents in our case.

I found Chapter 6 most interesting. It describes Quantum File Access, a way in which variable length records can be stored but still looked up very efficiently at the expense of some fragmentation. Chapter 7 re-implements this in C++. Chapter 8 is a reference for the algorithms described in the preceding chapters, but it's a little hard understanding what it's referring to without reading the chapters themselves.

The book is quite clear to read, although I found its structure rather jumbled. The chapter and section headings don't help – they're a bit like the ones in C++ For Dummies but worse – because they are not descriptive. For example, would you realise a chapter called 'Mozart, No. Would You Believe Gershwin?' is Chapter 8 from my above description?

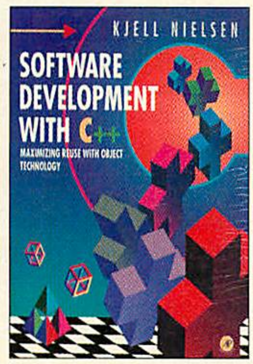
Footnotes are overused – 146 in all – with at least one on nearly every page of text. A great deal of the book is taken up by listings at the end of each chapter. The algorithms covered are far from trivial, making the listings very long. As there is a disc supplied, it seems rather a waste of space, although again users of older Acorns would have to borrow a friend's machine to read the high density disc. Another minor niggle is that one of the advocated techniques for optimising C is to rewrite it in assembler – x86 assembler of course, although the notes about inefficiencies in code generated by popular PC compilers are understandable.

This is probably not a book you would want to read out of general interest but if

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you have a reason for wanting to know how to implement one or more of the above algorithms efficiently it's a worthwhile investment.

Software Development With C++ (Maximising Reuse With Object Technology)



Proficient C++ programming requires far more than just learning the syntax, which most of us have got by with for small C, BASIC and assembler programs. Accomplished OOP relies heavily on design work carried out before starting to write code. The overall process can be roughly split into analysing the requirements of the program, designing for these requirements and finally writing the code. This book describes those processes with a view to implementing in C++.

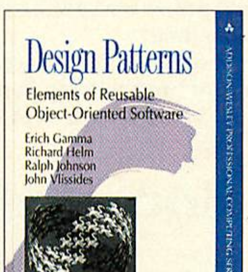
The book starts by describing the processes of development then the concepts of OT (Object Technology). It then describes and compares the specific methods applicable at each stage and how OT is applied to them, followed by C++ specifics.

A great number of acronyms are used throughout and it is quite difficult to keep track of which is which, especially as they are missing from the glossary. There are several examples, but I would have found it much more useful if it had stuck to one case study. As it is, it spreads itself too thinly by describing too many methods in insufficient detail. The first few chapters, in which the methods are described, are interesting and useful, giving enough information for a student to make an informed choice of which methods to use. Unfortunately the later parts seem to add little and things get rather repetitive. In particular, the descriptions of making the transition from one stage of development to the next appear quite inadequate.

I felt this book did not really achieve what I expected from it, but my view is probably clouded somewhat because it is written for a class of developer rather removed from the lone Acorn programmer. It is targeted more at well budgeted teams, probably designing a whole system including hardware, with access to sophisticated tools such as CASE (Computer Aided Software Engineering) software. These are non-existent for RISC OS and tend to be expensive for other platforms.

Software Development With C++ can be used as a good introduction to Object Technology for any programmer interested in the subject, but the sections aimed at putting theory into practice are not really adequate. A student would have to decide on one set of the methods presented and obtain more detailed training material before being able to quickly become a professional OT developer.

Design Patterns (Elements of Reusable Object-Oriented Software)



Design Patterns is a groundbreaking work. The practice of design patterns is very much based on OOP, but rather than aiming to generate totally reusable code, which is either unattainable or leads to bloat, design patterns represent ways of solving common problems where the exact interface and code can be filled in later to suit the specific problem. Although it means new code may have to be written for each application, the core of the structure is already familiar. Each pattern has a name, which may seem obscure at first but becomes a conveniently brief way of referring to it among pattern-aware developers.

The book divides the patterns into three categories: Creational, Structural and Behavioural. Creational patterns are used to create objects, keeping the rest of the program independent of this process. Structural patterns are concerned with combining a number of small classes and objects into a more powerful composite. Behavioural patterns are for defining algorithms and how objects and classes interact.

Before the body of the book where each pattern is described in detail, there are introductory chapters describing what design patterns are and how they can be used, followed by a case study of how some of the patterns can be applied to a word processor application. As each pattern is introduced in this section, you are encouraged to read its full details in the main section and you'll find yourself wanting to read about related patterns and so on. The appendices contain a glossary, an explanation of the diagram notation and some simple 'foundation' classes that can be used as building blocks.

In the main reference section, each pattern is described in a consistent way with distinct sections to describe the pattern and when and how to use it. The diagrams are clear and examples are given.

The book is very well cross-referenced. Each time a pattern is mentioned its page number is given. The inside front cover contains a summary of each pattern and the back contains a brief explanation of the diagram notation and a diagram showing possible interactions between all the patterns.

Design patterns do not stop with this book, but are an ongoing essential programming aid. Further books are available and on the Internet there is a Web site at http://st-www.cs.uiuc.edu/users/patterns or you can e-mail design-patterns @cs.uiuc.edu. The Web site contains further patterns but they are in Postscript format, and the only one I have ever successfully managed to view (that's another story) is not presented as well as those in the book.

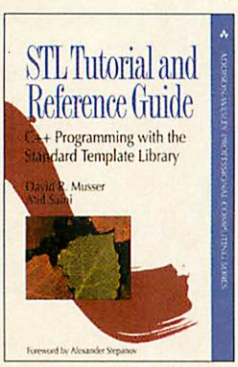
What impresses me is not so much the patterns themselves but the thinking behind them. Clever constructs are used to achieve features not usually supported by C++, such as dynamic inheritance, allowing an object to switch from one subclass

Getting into C++

to another at run time. The patterns are strong on decoupling implementation from interfaces so that changes can be made to one part of the code without having to rewrite or even recompile other parts.

I would not hesitate to recommend this book to anyone who is serious about programming anything but trivial applications, especially if they are working in a group and need to discuss the project with each other. Although it is claimed that design patterns are not just for OOP languages such as C++, the paradigms used are very much based on OOP, and most of the example code is in C++ while none of it is in a non-OOP language. However, if CFront, the C++ to C translator used in Acorn's C++ package, can use C for OOP, so can a human – and rather more elegantly.

STL Tutorial and Reference Guide



The Standard Template Library is fast becoming an important part of C++. It is now possible to use it in a patched form as supplied with the Acorn port of GCC so I thought it would be worth taking a quick look at one of the more established books. David Musser was a major collaborator with the STL's creator and Atul Saini is president of a major company supplying a commercial version of STL, so they can write with some authority on the subject.

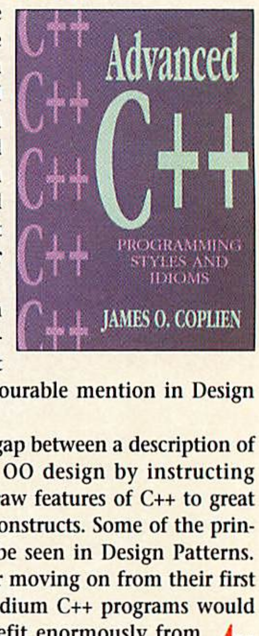
STL is, put simply, a set of template libraries for common constructs and algorithms such as vectors (single dimensional arrays), lists and sorting. What makes it powerful is its orthogonality. It can be divided into three categories: containers, iterators and algorithms. The aim is that any algorithm can be applied to any container using any iterator, although some combinations are not possible for reasons of practicality and efficiency. It is interesting to note how this orthogonality is achieved compared with techniques involving derivation.

STL uses some fairly advanced features of templates, some of which no common compilers support yet. The book points out when these problems pop up and describes work-arounds, including those necessary for GCC.

The book consists of three main parts. Part I is a tutorial, introducing the concepts and features one by one. Unfortunately it lacks exercises but there are examples. Part II puts the theory into practice with larger examples for managing a dictionary and finding anagrams. It also demonstrates STL's extensibility by defining a new iterator and contains a chapter on avoiding bloat, which is a tricky issue with templates. Part III contains the reference section. I found this easy to use once I understood the concepts from Part I. No disc is included but all the examples and other useful code can be downloaded from the Internet at http://www.aw.com/cp/musser-saini.html

A reference book is necessary to use any major programming library, and Musser and Saini's is established in the same class as Stroustrup's is for C++ itself. However, it too will need updating as the standards become finalised.

Advanced C++ Programming Styles and Idioms



I would have liked to have given this book a full review, but I regretfully ran out of time and have not been able to read enough of it to offer a fair summary.

It still rates an acknowledgement because it received an honourable mention in Design Patterns.

It bridges the gap between a description of the syntax and OO design by instructing how to use the raw features of C++ to great effect in clever constructs. Some of the principles here can be seen in Design Patterns. Any programmer moving on from their first few small to medium C++ programs would be likely to benefit enormously from reading this book. AU

Book details

C++ For Dummies (2nd Edition), Stephen R. Davis, 1996
IDG Books
ISBN 1-56884-614-2
Price: £23.99

The C++ Programming Language (2nd Edition), Bjarne Stroustrup, 1991
Addison-Wesley
ISBN 0-201-53992-6
Price: £26.95

Efficient C/C++ Programming (2nd Edition), Steve Heller, 1995
AP Professional
Price: £29.95

Software Development With C++, Kjell Nielsen, 1995
AP Professional
Price: £22.95

Design Patterns, Gamma, Helm, Johnson, Vlissides, 1995
Addison-Wesley
Price: £29.95

STL Tutorial and Reference Guide, David R. Musser and Saini, 1996
Addison-Wesley
Price: £29.95

Advanced C++ Programming Styles and Idioms, James O. Coplien, 1992
Addison-Wesley
Price: £32.95

In the frame

David Matthewman considers Java and frames in the final instalment of his HTML tutorial

As I write this, there's a debate going on in one of the Acorn newsgroups concerning the Web site of the *Times Educational Supplement*. The gist of the debate is that the TES site uses frames and JavaScript, making it impenetrable to all Acorn users. Since Acorns are widely used in education (or so rumour has it) this seemed a strange decision.

Reportedly, the TES's response was to suggest that all Acorn users should push the browser manufacturers to include support for frames and JavaScript in their browsers, because this was fast becoming a Net standard.

This response from the TES is short-sighted, lazy and (unfortunately) true. The number of sites that are effectively unviewable without version 2 or later of *Netscape Navigator* or version 3 of *Microsoft Internet Explorer* is growing rapidly. This is wrong, not just because it excludes people from the Web but because there is no need for it. None.

It's for this reason that I'm devoting the last tutorial in the series to frames and Java. Frames are supported in a small way by *ArcWeb*, *Termite* and (indirectly) *Fresco*. Currently this is done by opening the frames in separate windows, but the situation may improve soon (possibly by the time you read this). Java's a bit more of a problem – there are conflicting rumours coming from Acorn, which again may all be water under the bridge by the time this is published. Acorn's NC supports both frames and Java, although its frames support was slightly limited last time I looked.

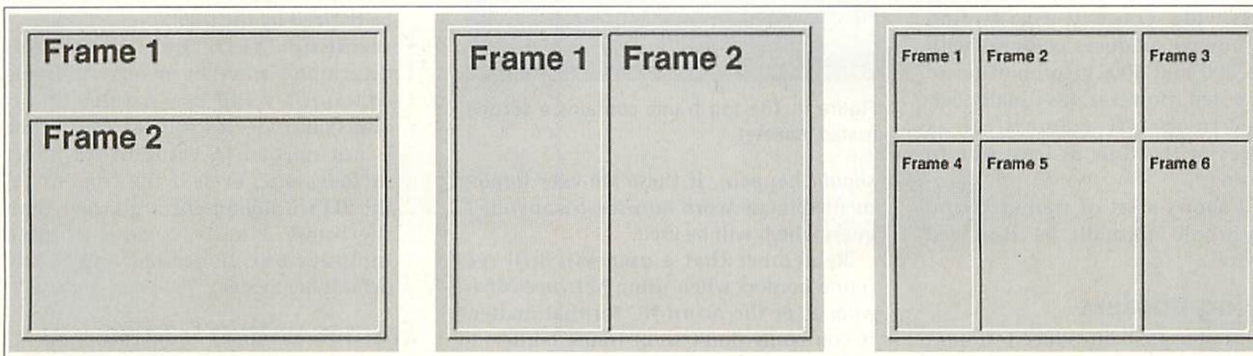
Leaving these uncertainties aside, Java and frames *are* supported on many other platforms, so you may decide to use them in your HTML. It's important you do this in a way that doesn't exclude other users and it's to that task this tutorial is ultimately dedicated.

Frame sets

The idea of frames is simple: a browser window is split into a number of smaller windows, each of which behaves like a mini-browser. You can display in a frame anything that would display in a browser. In addition, the individual frames can all be named. This allows you to access a particular frame on a page from another frame by referring to it by name.

Frames are not part of the body on an HTML page, nor are they part of the head. The frame information in a page is placed between the head and body on a page, and is enclosed by the **<frameset>... </frameset>** tag pair.

A *frameset* describes a partitioning of the browser area into frames. This partitioning can either be horizontal or vertical, or both. The partitions are described by using the **rows** or **cols** attribute, depending on whether you want horizontal or vertical partitions. Rows and columns in a frameset always line up; there's no way to get (say) the




```
<frameset rows="100, *">
  <frame src="frame1.html">
  <frame src="frame2.html">
</frameset>
```

```
<frameset cols="40%, 60%">
  <frame src="frame1.html">
  <frame src="frame2.html">
</frameset>
```

```
<frameset cols="*, 2*" rows="100, 200, *">
  <frame src="frame1.html">
  <frame src="frame2.html">
  <frame src="frame3.html">
  <frame src="frame4.html">
  <frame src="frame5.html">
  <frame src="frame6.html">
</frameset>
```

Figure I: Three framesets and how a browser would normally display them

In the frame

first cell of the second row to be double width, in contrast with tables (but see later how this can be done easily with nested framesets).

The **rows** (or **cols**) attribute takes a set of numbers, which specify the height (or width) of the partitions in pixels. You can also use the * character, which means 'take up whatever room is left'; you can have multiple * entries, in which case the space is divided equally between them, or you could have something like:

```
rows = "300, 2*, *"
```

in which case the first row would be 300 pixels and the remaining space would be divided between the other two rows, with the top one being twice the height of the bottom one.

The row and column sizes can also be expressed as percentages, which split as you'd expect. These notations can be mixed, and generally the browser will split the screen as you'd expect it to.

If you define a frameset as:

```
<frameset cols= "200, 100">
```

and then try to display it in a window 600 pixels wide, you will usually find that the browser produces columns with widths of 400 and 200, in proportion to those requested. However, it's usually better either to specify frame sizes as percentages or to allow at least one to vary by using *.

Figure I shows a set of framesets and how they would normally be displayed by a browser.

Removing borders

When they were first introduced, frames in HTML pages were always surrounded by a window border. This could look a little ugly sometimes, so there were a couple of attributes added to the **<frameset> ... </frameset>** tag pair to control the borders. By a stroke of lunacy that couldn't have looked sillier if it had been planned that way, *Netscape Navigator* and *Microsoft Internet Explorer* do this a different way. In *Navigator*, you write:

```
border=0 frameborder=no
```

because these set the size of a frame's border and whether or not it has 3D sides. In *MSIE* you write:

```
frameborder=0 framespacing=0
```

because these alter the existence of a frame border and the spacing between frames respectively.

Fortunately, in practice if you write:

```
border=0 frameborder=0 frame-
spacing=0
```

frame borders are turned off in both browsers (whatever the documents say *should* happen). If these are ever implemented in an Acorn browser, it's anyone's guess which will be used.

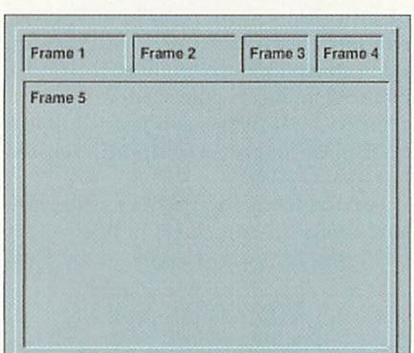


Figure II: The top frame contains a second nested frameset

Remember that a user will still see frame borders when using *Netscape Navigator 2*, or the Acorn NC for that matter. If you *really* don't want frame borders – don't use frames.

The frames themselves

What goes in the actual frames is determined by the **<frame>** tags. There are several of these in a frameset, one for each frame (but see later about nested framesets). Each **<frame>** tag (and it *is* a single tag, not a tag pair) contains a **src** attribute, giving the URL of an HTML page to be displayed in the frame. Actually, it doesn't need to be an HTML page, it can be anything the browser will display such as a GIF or JPEG, but in practice it commonly is HTML.

The other common attribute used with the **<frame>** tag is the **name** attribute. This identifies a name for the frame and should be unique for the frameset (and preferably for the Web site). This name identifies the frame so that other frames in the frameset can refer to it.

Therefore, a frame:

```
<frame src="frame1.html" name=
"Top_frame">
```

will be displayed containing the HTML in the document *frame1.html*, and will be referred to by the name 'Top_frame'.

The **<frame>** tag has a number of less important attributes:

- **marginwidth=n:** sets the side margin size for the frame
- **marginheight=n:** sets the top and bottom margins for the frame
- **noresize:** means that the frame cannot be re-sized by the user
- **scrolling="yes"/"no"/"auto":** this determines whether or not the frame contains a scroll bar. A value of **yes** always includes a scroll bar, even if one is not needed. A value of **no** never includes one, even if the contents of the HTML document are larger than the frame. Finally, a value of **auto** includes one if needed and is the default behaviour.

Frames within frames

The stipulation that a frameset must be a grid seems a little limiting. You might want to split a small top frame into multiple smaller frames but leave the area underneath as a single large frame to display text in.

Fortunately, this is easily achieved in

e

two ways. Firstly, the document displayed within a frame may itself contain frames, just as a table cell may contain tables. Secondly, any of the **<frame>** tags in a frameset may be replaced by another frameset.

This means that the situation proposed above could be managed as follows:

```
<frameset rows="50, *">
  <frameset cols="30%, 30%, 20%, 20%">
    <frame src="frame1.html">
    <frame src="frame2.html">
    <frame src="frame3.html">
    <frame src="frame4.html">
  </frameset>
  <frame src="frame5.html">
</frameset>
```

Figure II shows how this would typically look in a browser.

Targeting frames

By default, any page linked to from within a frame displays in that frame. You can change this by using the **target** attribute in the **<a> ... ** anchor tag pair (**target** can also be used in client side image maps, form tags and set globally for a page in **<base>** tags in the document header).

If you specify:

```
<a href="copyright.html" target=
"Frame_1">
```

then the document *copyright.html* will load up into the frame with the name 'Frame_1'.

There are four special values that **target** can take, which all start with the underscore character and have the following meanings:

- **_blank**: document should be opened in a new browser window
- **_self**: document should be opened in the frame containing the link (the default behaviour, but if you change the global behaviour for a page by using **<base>**, you may need to use **target="_self"** occasionally
- **_parent**: document should be opened in the *frameset* containing the link
- **_top**: document should be opened at the top level, occupying the whole browser window – useful for breaking out of multiply-nested framesets.

No frames?

If a frame-aware browser comes across a document with frameset information that *also* contains a **<body> ... </body>** tag pair, it may ignore the frame information and display what's in the document body instead. However, non-frame browsers will expect there to be some body text in the document and will display a blank page if there isn't.

The way to cater for both these is to use the **<noframes> ... </noframes>** tag pair. Frame-aware browsers will ignore anything between the tag pair, so you can safely put the body of your HTML document there. Non-frame browsers will not recognise the tag pair, ignore it and display the body text on the page.

A page then might look something like this:

```
<html>
<head>
<!- header information here ->
</head>

<frameset ...>
<!- Frameset information here ->
</frameset>

<noframes>
<body>
<!- Body text here ->
</body>
</noframes>
</html>
```

And now a few words about what you put inside the **<noframes> ... </noframes>** tag pair. If you remember what I wrote earlier, you'll realise that I'm not too impressed with Web designers who put 'You are using a non-frame browser – click here to download Netscape Navigator', for a number of reasons.

It should be relatively easy to produce a version of the page that doesn't use frames (although you may have to work a bit harder to do one that doesn't use tables). It may not look as elegant, but it *will* be readable by people with non-frame browsers. If I can do this on the Xara Ltd site with over 400 pages (and I do), very few people reading this article can have any excuse for not doing it.

With a non-frame version of the page, either include it in the body below the frameset, or include a link to it. The best solution is to give people a choice of a framed or non-frame site on your (non-framed) home page – then people using a



With Java, you can play some old favourites on the Web

frame-aware browser who happen not to like frames will be able to choose the non-frame version.

Java

Java applets are becoming increasingly common on the Web. Java basically allows the browser to run a small stand-alone application in an area of a Web page – the application or 'applet' is restricted in that it can only draw into that area of the screen and also is not permitted to perform a number of other operations.

Java shouldn't be dismissed because it

In the frame

doesn't (yet) run on Acorns. Although very few Java programs on the Net do anything that couldn't be done any other way, they often do it more elegantly. Java programs are often highly compact because they make extensive use of built-in libraries that are guaranteed to be on the user's machine.

They are truly cross-platform and will run on anything that has a Java Virtual Machine (JVM) because *all* the machine-dependent code is hidden in the JVM. Java doesn't live up to the hype surrounding it – that is almost certainly true – but it's still a good language.

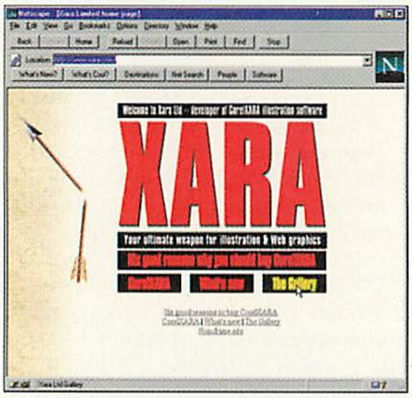
I'm not going to even attempt to describe programming in Java. You can in any case download a number of useful PD Java applets from the Net without knowing any Java yourself. However, to include Java in your HTML, you use the **<applet>** ... **</applet>** tag pair.

Because this is a tag pair, you can enclose alternative HTML within it. This will be ignored by browsers that understand Java but displayed by those that don't (or that choose to ignore the tag pair for whatever reason). In this way, you can make your page perfectly readable both by browsers that understand Java and those that don't.

For example, the Xara Ltd home page has a Java applet on it that lights up areas of an imagemap when the pointer moves over them (because it looks pretty, that's why).

However, there is also a standard imagemap between the **<applet>** ... **</applet>** tag pair, so anyone visiting the page with a non-Java browser still gets the imagemap. It doesn't light up for them but that's not really much loss. They wouldn't expect it to anyway.

This is completely transparent to the browser. The only way that they would know that the page contained any Java at all would be to look at the HTML source. This is as it should be. It doesn't matter if your page looks completely different on a non-Java browser or as close to the Java version as possible. Either is possible, either is acceptable. What's *not*



The Xara home page looks identical to a Java-enabled and a non-Java browser, until you move the pointer over the image map

acceptable is to leave non-Java users feeling short-changed. Many people have Java turned off for a good reason – respect this.

Anyway, the attributes of the **<applet>** ... **</applet>** tag pair are as follows:

- **align="position"**: applet alignment, as for images
- **alt="String"**: alternative text, as for images. This is displayed if the applet fails for some reason (unlike the HTML between the tag pair, which is displayed if the browser doesn't understand Java)
- **code="Class"**: this gives the name of the Java applet. It assumes that there is an applet file *Class.class*, and that this contains a Java class 'Class'. It is *vital* to get the case of these correct. Usually Java classes are capitalised, and this must be reflected both in the **code** attribute *and* in the file name (which must be the same as the class). **Class** can be a fully qualified package and if you don't know what that means you don't need to
- **codebase="URL"**: the URL of the directory containing the applet – if this is not given it defaults to the URL of the document
- **height, width=n**: the height and width of the applet in pixels
- **vspace, hspace=n**: the vertical and horizontal gap around the applet in pixels
- **name**: the 'name' of the applet within a page, which may be used by other applets on the page to refer to it.

Applet parameters

In addition to the **<applet>** ... **</applet>** tag pair, there is another tag associated with applets which can appear between the tag pair – **<param>**. It is used to pass parameters to the applet as follows:

```
<param name="this" value="that">
```

where **this** and **that** can be replaced as appropriate. An applet may take multiple parameters, so there may be multiple **<param>** tags.

And finally

I'd like to thank everyone who's followed this HTML series through the past months. I've covered a lot of ground and even then have only sketched over several areas. If you *really* want to learn HTML at a deeper level than I've covered, there are a number of books available to help you. I've already mentioned in an earlier article *HTML: The Definitive Guide* by O'Reilly and Associates Inc, and as a work of reference it's an excellent book. There are too many others to list here – many also cover CGI and some also touch on Java and JavaScript, so the best bet is to flick through several and see which one best covers the areas in which you're interested.

Be warned that although most come with CD-ROMs, the software on the CD-ROM won't run on an Acorn. The best you can hope for is that some of the examples will be transferable onto your machine with file names intact but even this can often cause problems.

And remember, you don't have to be connected to the Internet to write HTML. Most of it works just as well on a local hard drive, so you can learn to speak the language of the Information Superhighway while still parked in your garage, so to speak. AU

picture book 2

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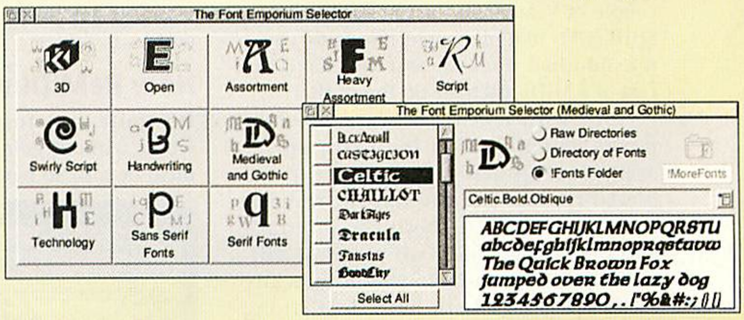
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Midi

REVIEW

Rob Miller on the non-hardware music revolution

Soft

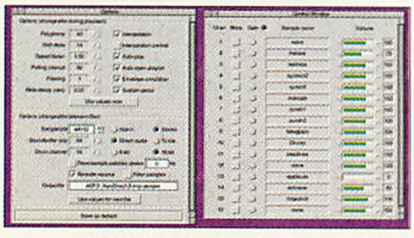
Even though MIDI has been around a long time, it only now seems to be making its presence felt in the Acorn market. The increased power of recent machines, in particular the StrongARM Risc PC, means that it's now possible to produce MIDI software such as sequencers that are more than capable of taking on those on other platforms.

Apart from the lack of real — or, more correctly, appropriate — power, the main drawback when it comes to MIDI has been the cost of additional hardware. Only a couple of years ago, the cheapest General MIDI (GM) module would have cost you a few hundred pounds, and you have the cost of a MIDI interface on top of that.

Now, with recent software developments, coupled with the extra power available from new machines, it is possible to replace all the hardware with software to emulate both the interface and the GM module. Two pieces of software are now available which basically do this although both have their strong (and weak) points.

ReMIDI

ReMIDI is an application designed to allow you to play standard MIDI files on the desktop, on any machine with RISC OS 3.1 (or greater), an ARM3 (or better) and a hard disc. It will work with machines that have 8-bit sound or those with 16-bit sound — the Risc PC 700, A7000 or a Risc PC 600 with 16-bit Minnie sound card upgrade. It won't work with any of the third-party 16-bit sound cards at present (eg. Irlam's 24i16 or Computer Concepts' Lark), but will still function using 8-bit sound on such a machine, providing it has an ARM3 or greater.

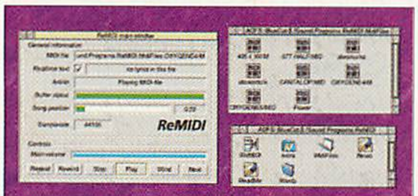


ReMIDI's options and control windows

The program comes in the form of a single application which contains all the code for playing MIDI files, plus the 128 instrument patches that go together to form the GM specification. These patches are shareware and are available from Michael-Dennis' ReMIDI web page (http://www.stack.nl/~michaeld/remidi.html), or from the Datafile public domain library. They take up roughly 4.5Mb (uncompressed) so you'll need a decent (equals *quick*) internet connection if you want to get them at a genuinely lower cost.

How ReMIDI works

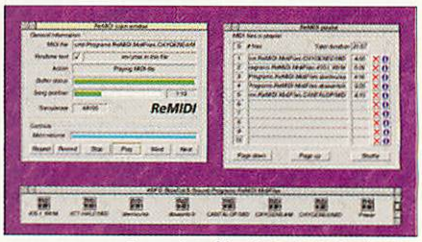
It's quite easy to explain how ReMIDI works without going into too many technical details, so here goes. When you first run ReMIDI, it just loads the main core of the program into the computer, and installs itself on the icon bar. When a MIDI file is loaded, it interrogates the file to see what instruments it requires (the list of instruments that a song requires is part of the MIDI file specification) and then loads just those patches into the computer's memory. ReMIDI then plays the music in the file.



Playing a MIDI file with ReMIDI

One important point worth stressing here is that ReMIDI is *not* a MIDI instrument emulator, that is you can't load up ReMIDI and then expect some other MIDI-compatible program (such as a sequencer) to be able to play music through it.

The author is working on a version of ReMIDI that will allow it to replace a GM hardware module. It will be different to ReMIDI inasmuch as (a) it will load all samples in advance, requiring about 5Mb of RAM, and (b) it will only work on 16-bit audio.



Queueing files in ReMIDI's playlist

Using ReMIDI

To use ReMIDI, all you need do is install the program, let it know where the instrument patches are stored (this can be anywhere on your hard disc) and double-click on a MIDI file. ReMIDI then plays the song either through the internal speaker, or though whatever is connected to the headphone socket at the back of the computer.

The main ReMIDI window is used to show various information about the current song, including the current position in the file, the time elapsed, the sample rate at which the song is being played, and the song lyrics if they are available. Part of the MIDI file specification includes optional lyrics (something to do the Japanese obsession with karaoke no doubt) although most tunes you come across seem to be without.

A further Control window allows you to alter any one of the 16 channels (ReMIDI supports 16 channels as in the the GM specification) and includes muting to quieten out selected tracks, solo to play selected tracks and volume sliders. While standard RISC OS radio buttons and tick boxes are used in the layout of the window, it does make it quite large on the screen — it takes up over two thirds of an 800x600 desktop.

Sound quality

One of the best things about ReMIDI is that it will work in both 8-bit and 16-bit sound. At present, there are no other sound cards catered for although it's likely that third-party upgrades such as Irlam's

MIDI

24i16 and Computer Concepts' Lark card will get software support in future. The author is looking into it so watch this space in future as they say, or better still, keep an eye on the ReMIDI web page if you can.

With 8-bit sound, the sound quality is remarkably good, especially if you have audio signal routed out of the sound-out socket and into an amplifier or headphones. A lot of MIDI files have been recorded using real keyboards, drums and so on, which definitely comes across.

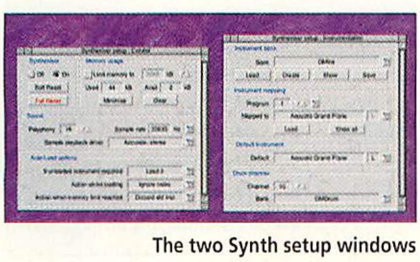
With the machine connected to an external amplifier, it's almost unbelievable the quality of 16-bit sound reproduction you can achieve, especially considering that everything is being done in software.

Comparing it to a dedicated piece of hardware (eg. a Yamaha CBX-T3 GM module) might sound unfair but it's still surprising the clarity of one compared to the other. The hardware sounds 'larger' and has a lot more presence but ReMIDI is certainly adequate for playing back the occasional tune.

ESP's synthesiser

Another application (in fact the only other application as far as I am aware) that attempts to simulate a GM synthesiser in software, is ESP's software synthesiser. This, like ReMIDI, uses a collection of 128 sound patches to emulate a GM module and allows standard MIDI files to be played back as if they were being fed to a suitable piece of MIDI hardware.

The major difference though, is that ESP's *Synth* can be run in conjunction with other MIDI software and be used to replace a GM synth or module. For example, if you run ESP's Synth, and then run up a copy of *!Maestro*, you will then have access to a full set of GM sounds that you can use to play a tune with.

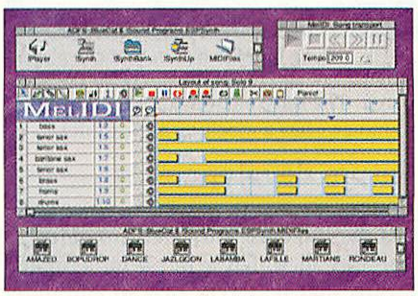


The two Synth setup windows

ESP's Synth will function quite happily, even with professional sequencers such as Liquid Silicon's new *MelIDI*, making it an ideal way creating music without the need for expensive hardware. You can of course, save out your work as a MIDI file and then play it back on any hardware GM synthesiser or module.

Setting up

Installing Synth is extremely easy and just requires the contents of three discs to be copied over to a suitable place on your hard drive. There is one main application

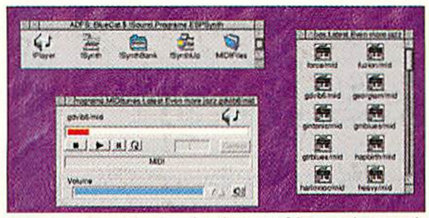


Using Synth with a MIDI sequencer

!Synth (the GM synthesiser emulator) and a resource directory called !SynthBank which is used to hold all the sound patches required for the synthesiser.

Once loaded, !Synth appears on the icon bar, and gives access to two control windows. The first is for Synthesiser Control and allows you to adjust the polyphony and sample rate (see later), set the amount of memory used, plus a few other general setup options. The other window provides control over instrument mapping and allows you to load and save different instrument banks into the synthesiser.

One word of warning here. I tried to run !Synth with a Computer Concepts Lark card fitted in my machine and got no sound produced at all. After some investigation, it turns out that the MIDI module version number for the Lark card is higher



Playing back MIDI files with !Synth

than that used for !Synth even though it's an older piece of software.

What you first need to do is RMKill the MIDI module on the Lark card before running !Synth. ESP are aware of this problem and they are going to make the version number of their next MIDI module higher than that of the Lark one, to ensure it gets loaded in preference. There shouldn't really be a problem with this 'clash' and it will be solved in the near future. ESP's web site will include any upgrades as and when they become available.

Sound Quality

Unlike ReMIDI, ESP's Synth will only work with 16-bit sound. It will however, play back audio at any sample rate up to 50KHz. There is an 8-bit version of Synth currently under development which should hopefully be ready for release by the time you read this article. More up-to-date details should be found on ESP's web site.

In order to achieve optimum sound output, and to ensure that the SoundDMA is not overloaded (which can lead to the machine freezing) there is a trade-off between the polyphony (number of channels you can play at once) and the sample rate.

Anything from 20.833KHz upwards sounds perfectly clear although you won't get 'CD quality' unless you have Synth set to play back at 44.1KHz — with a relatively low polyphony of eight channels. I would have thought that the latest Acorn computers, especially the StrongARM Risc PC, were capable of more and I have been informed by ESP that it is in fact possible (and I can confirm) to play back up to 32 simultaneous channels at 44.1KHz.

Soft MIDI

MIDI on the Internet

Here is a list of web sites worth checking out if you want MIDI files to play

Classical Music Archive
http://www.prs.net/midi.html
The Downbeat Cafe Jazz and Midi
http://www.downbeatcafe.com/
Gerd's MIDI Pages - The Collection
http://stud1.tuwien.ac.at/~e8925292/best-mid.htm
Harmony Central Sources of MIDI files
http://www.harmony-central.com/MIDI/files.html

Unfortunately there is no easy method of testing whether or not the SoundDMA is reaching it's limit although ESP and Acorn are working on a more 'robust' system that allows Synth to know when the polyphony is reaching the limit of the SoundDMA system. Until that is ready, ESP have therefore set the limits low, just to be on the safe side.

PC compatibility

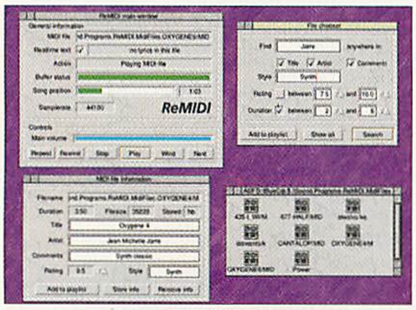
Unlike ReMIDI, ESP's Synth will work quite happily under Windows on a suitably equipped Risc PC (ie. one with a second processor fitted). Installing it for use under Windows is a simple case of running it up before entering Windows and then making sure you have the right drivers installed.

Without delving too deep into the (rather messy) world of Windows, it's sufficient to say that all you need is a generic GM driver installed. Once you have all the bits of software in the correct place however, any subsequent Windows program that you run should have access to MIDI if it requires it.

Quite a few games now use GM to generate music and sometimes even sound effects, and the difference between MIDI and non-MIDI soundtracks is quite noticeable. There are also quite a few shareware programs available for Windows which make use of MIDI so you should have plenty to play with if you look hard enough.

For those with access to the Internet, and in particular, access to the web, you might want to have a look at the Koan ambient music generator of which you can find a demo on their web page http://www.sseyo.com/indexnew.html — even though there is only a demo version of the program available. It's a shame that there's nothing similar for RISC OS.

The only two drawbacks with using Synth via the PC Card are that MIDI and DOS don't always work too well together, and Synth slows down the performance of Windows especially with graphics. ESP are looking into both problems and might be able to cure the former with a suitable



Searching for MIDI files in ReMIDI's playlist

patch. The only answer to the latter one is to have as fast a machine as possible.

Future developments

As it stands, !Synth provides a basic set of GM instruments and percussion effects. The way in which it has been designed means that it is very easy to add more instruments or replace one or more of those currently installed.

ESP will shortly have a selection of different instrument packs available, including Pianos, Brass, Strings and Guitars. These will be more specialist than those included with !Synth and should suit those users wanting to use the program for particular types or styles of music. A similar idea is used in hardware synthesisers (such as Roland's XP50) although new instruments normally come in the form of a plug-in card and cost a great deal more. The price for these new !Synth sound packs is £5(+VAT) each.

An instrument editor which is currently in development (but should be available by the time you read this) will allow you to edit the different sound patches. Different parameters such as number of tones, tone to note mapping, and looping points can all be edited, and it will even allow the importing of sample and instrument files in formats such as Gravis, WAV and RAP.

Summing up

Although ReMIDI and !Synth do a similar thing they are quite different. The most important distinction is that Synth will work in conjunction with any other application that requires output to a MIDI instrument, whereas ReMIDI will just play back MIDI files.

Both programs are relatively cheap but bear in mind that !Synth is far more flexible in as much that it can be used in place of a hardware synthesiser. Of course there is also the fact that it can be expanded with extra sound packs or even third-party ones from other platforms.

If you want a cheap GM synthesiser, buy ESP's !Synth. If, on the other hand, you have a stack of MIDI files and you just want to hear what they sound like, go for ReMIDI. My personal choice would be ESP's Synth, but then not everyone is lucky enough to have a Risc PC with 16-bit sound. AU

Product details

Product:	ReMIDI
Price:	(£5)
Supplier:	Michael-Dennis Biemans, Willem Frisostraat 20, 5616 BE Eindhoven, The Netherlands
E-mail:	michaeld@stack.nl
Web:	http://www.stack.nl/~michaeld/remidi.html

(ReMIDI is only available from Michael-Dennis via e-mail. If you do not have e-mail, you should get ReMIDI from The Datafile PD library which is at: Willoughby House, 89 Woodville Road, Boston PE21 8BB.)

Product:	ESP MIDI synth
Price:	£39.95 (inc VAT)
Supplier:	Expressive Software Projects, 21 Beech Lane, West Hallam, Ilkeston, Derbyshire, DE7 6GP
Tel/Fax:	0115 944 4140
E-mail:	sales@ExSoftPr.demon.co.uk
Web:	http://www.cybervillage.co.uk/acorn/esp/index.html

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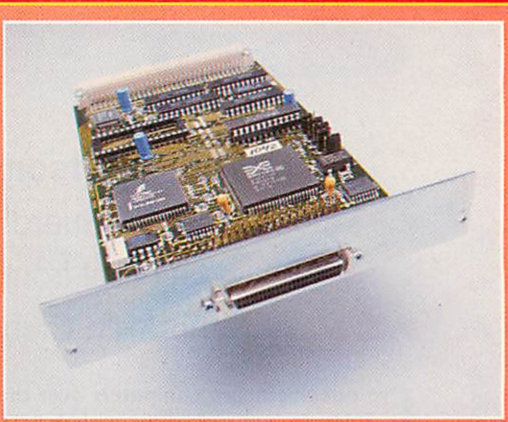
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Graham Nelson looks at StrongGuard! – the latest utility from the ARM Club

Taking the Strong out of StrongARM

I've run five Acorn computers over the last decade – an early A305 with Arthur, an A310 with RISC OS, an A5000, a Risc PC 700, and now the same but fitted with a StrongARM. Not one had quite the same processor or operating system as its predecessor. So in a way it's perverse that I've thought of each in turn as 'the Archimedes'.

The greatest changes can be invisible from the desktop because the ARM chip engineers have usually been more willing to bite the bullet than the RISC OS designers. RISC OS has ducked major issues over the last eight years – the confusion of multi-tasking with window redrawing, always a temporary bodge, is still not quite resolved. But in compensation, it's remained a fairly stable platform for programmers (compared with MacOS or Windows). It's to Acorn's credit that we even hope old programs will still work.

We're often disappointed, though, when it comes to games. For example, since the A310, the screen memory has been relocated, and a program writing to the old address will probably 'abort on data transfer'. Monitors have changed and old screen modes are not always conveniently viewable. The sound hardware was redesigned for the Risc PC, which can result in ear-splitting screams. Finally, even the tremendous increase in ARM processing power can handicap games – they can run impossibly fast or mistime events.

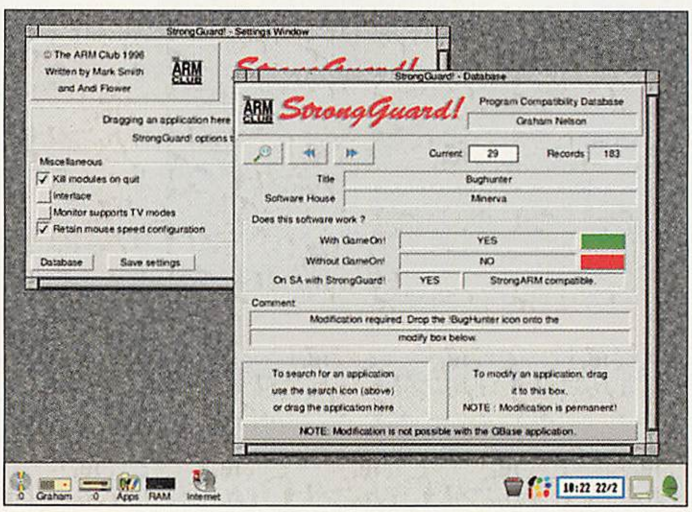
StrongARM – a big invisible change

The StrongARM processor has almost the same instruction set as its predecessors but there are crucial changes. For the first time it uses different caches for instructions and data. Although efficient, this can be disastrous if a program treats the same block of memory as both instructions and data – if a program tries to write its own instructions, the caches get out of step and the wrong instructions are obeyed. Games are vulnerable, as 'self-modifying code' is a popular trick for rapidly plotting up sprites.

Two recent freeware utilities will 'turn off' the new cache architecture as needed: *AutoCache* (by Technium220) and *StrongCache* (by Spidersoft). I preferred *StrongCache* (downloadable from http://www.argonet.co.uk/users/d.s.mars/) but it really only types the commands 'cache on' or 'cache off' on your behalf. This is always worth a try – it'll get *Simon the Sorcerer* and *Elite* working, for instance.

StrongGuard!

StrongGuard! is the ARM Club's utility for running old games on a StrongARM. It's straightforward to install and comes with



a 16-page manual that's generous with interesting technical details, which there's happily no need to master.

StrongGuard! mostly consists of modules watching in the background while games run, though a few games can also be surgically improved. At the desktop is a toy database, displaying details of games which have been tested with it. This has 183 entries, though some surprising omissions (*Simon the Sorcerer; Star Fighter 3000*) and of course not all the tests are positive.

The documentation and database leave one crucial point confused – what the difference is between StrongGuard! and *GameOn!*. The database makes them seem like two separate applications and after all they're both on sale – the manual cover reads 'Incorporating GameOn!', but I thought that meant the manual was joint. In fact StrongGuard! contains GameOn! built-in (see hint on page 9). A third application, *GBase*, is named in an ominous warning on the database window – this turns out to be a promotional package, so the warning is meaningless. Finally, the database prints up phrases like 'SG user mode prot required' – in fact there's no need to understand but nor is there much opportunity.

And does it work?

After a week or so of experiments, I felt that the exclamation mark – the title's a pun on 'en garde!', presumably? – ought to be a question mark. GameOn! – the part of StrongGuard! which upgrades Archimedes games to the Risc PC – contains a wealth of accumulated experience. The newer material for the StrongARM card is much less capable – I counted only 12 cases where it would work but turning off the cache wouldn't. It claims to correct the speed of a few more, such as Elite, but I couldn't tell the difference.

StrongGuard! is no magic wand nor does it pretend to be. I'd advise browsing the database before you buy and the ARM Club have generously made this available at http://www.armclub.org.uk/products /strongguardindex.html AU

Product details

Product: StrongGuard!
Supplier: The ARM Club
Address: FREEPOST ND6573, London N12 0BR
Price: £25 inc VAT; members £22.50. To upgrade from GameOn! costs £15 (release 1) or £10 (release 2)
Pros: Convenient • Well-coded
Cons: Presentation lacks clarity • Not as good for StrongARM as GameOn! is for plain Risc PCs

Get your **priorities** right

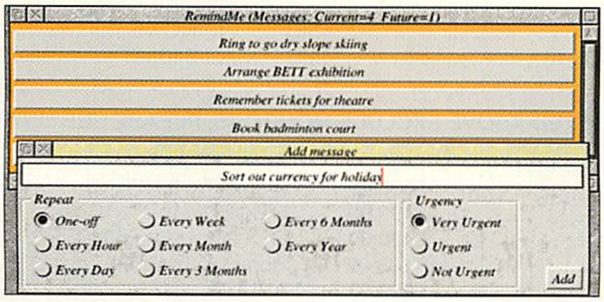
I'm a list person, so when *RemindMe* from Cherisha Software arrived in the office, I had a sneaking suspicion that it might turn into a favourite of mine.

RemindMe is for people working in busy environments where it is easy to overlook major tasks in favour of minor ones. You enter tasks and *RemindMe* will provide a regular reminder in a message box on screen.

The application is extremely simple to use. A maximum of 255 messages can be entered – I hope I'm never *that* busy – which can be up to 64 characters in length. There are five message buttons on display which continually scroll through the current reminders. The window's title bar contains the number of current and future messages.

For each message the user must select how often they want it repeated, ranging from a One-off to Every Year plus how urgent it is. These selections reflect the frequency that the message appears in the Message window.

As there are no date settings, I would be wary of using it to remind me of anything very important. The instructions do not make it clear when, for instance, a once yearly message will be displayed. It's not very useful if your MOT needs doing in March and the yearly message appears in May.



Messages can be amended easily – this includes the content as well as the frequency and urgency. To delete a message it must be amended to be a One-off as deleting a repeating message will only temporarily remove it – a new date will be automatically assigned for it to re-appear.

RemindMe would be more useful if it was had some sort of sound alarm to accompany any very urgent messages. Personally I would not think to click on the *RemindMe* window when busy working on something else.

Version 2.00 is due to be released in early 1997 and purchasers of version 1.00 will be entitled to a free upgrade.

Product details

Product: RemindMe
Requirements: RISC OS 3.1 or better
Supplier: Cherisha Software
Address: 16 Woodside Drive, Wilmington, Dartford, Kent, DA2 7NG
Tel: (01322) 553953
Fax: (01322) 400883
WWW: http://www.zynet.co.uk/gold/katech/Welcome.html
Price: £15 (single user), £45 (unlimited site licence)

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- the WR510 – the keyboard model designed to fit standard keyboards
- the WR511 – for the mouse only
- the WR512 – the combined keyboard and mouse wrist rest

I tested the combined model which was incredibly easy to put together. The height of the wrist rest can be adjusted so that a neutral wrist position can be achieved for different users. The keyboard can then be placed on top and that's it. Non-skid rubber strips are provided to keep it in place on the desktop. There is a mouse pad on each side which makes the combined model suitable for both left and right handed people and the rough texture of the pad is excellent for mouse precision.

The gel-filled wrist rest of the WR512 runs the full length of the keyboard and mouse pads so the wrists are supported when using either. The fabric of the wrist pad is cool and comfortable and designed to be gentle to the skin. As the pad is gel filled it fits to the shape of the users wrist, quickly returning to its original shape after.

I had begun to have some pain in my hands, but since using the WR512 I haven't experienced any – so it seems to have helped me. My only criticism is that



the combined model takes up quite a lot of valuable desk space – but then again not everyone has such a cluttered desk as a busy assistant editor on your favourite magazine. AU

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WR511(24 x 28.5cm) mouse model – £23.65
WR512 (68 x 28cm) combined mouse and keyboard model – £47.25

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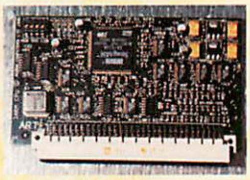
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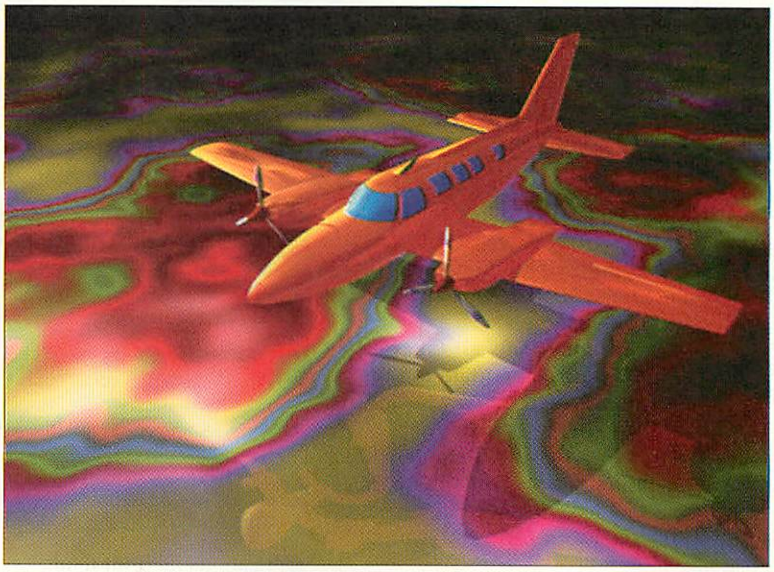
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Raytrace from 'Merlin'



Get your PD on CD

Chris Jackson looks at the latest CD collections of Public Domain software

Over the past two or three years CD-ROMs for the Acorn have been spawning all over the place and although you couldn't call the market 'saturated', the number of CDs available means that companies are selling on quality not quantity.

Due to the nature of public domain CD-ROMs, companies can gain marginal profits as many PD authors don't like others profiteering from their work. This means that most of the CDs available are usually around the £25 region.

On both the CDs in the review, archives are used to keep the original RISC OS filenames – which can be in upper and lower case, unlike CD-ROM names which must be in upper case only.

One thing I love about owning a number of CD-ROMs is that when I need a special utility I can remember seeing previously, I can usually put my finger on it with the click of a few buttons. I sometimes slot a CD in the drive and go for a browse and it's brilliant to come across a gem application – the type that prompts you to wonder why the author didn't release it commercially!

The ARM Club is producing the second in its series of public domain CD-ROMs which should be available around April, however beta copies were not available when the magazine went to press. ArmClub CD2 will almost definitely be worth watching out for as its first attempt was excellent and very well organised.

PDCD4

I was very pleased to see that the packaging of *PDCD4* had been given a more slick look than the previous versions, to which RiscDisc users have become more accustomed.

I was slightly disheartened to find that the PDCD4 catalogue wasn't on the CD. Eventually I found it on the accompanying floppy disc, which makes it almost compulsory to install the interactive catalogue on your hard disc, as having to search for a floppy each time you want to find a file on the CD can get to be a bit of a pain.

Merlin, a desktop raytracer from Evolution Computers, comes free of charge on the CD. I had a good play around with it and found the application very well written. Merlin alone might be a reason to buy the CD, especially for people who liked QRT and POV. A StrongARM upgrade disc for Merlin is available from the Datafile.

A great number of music files are on the CD, all of high quality and in *Digital Symphony* format. These come in handy when working at the computer for quite a few hours and need a good music selection to listen to.

I generally don't dwell on demos very much but recently there seems to have been a great amount of work going on by coders. The demo directory contains latest creations by the great demo groups: Xtreme, which is an amalgamation of smaller graphical masterpieces from a number of coders, Voxel and a number of high quality others.

When I first saw the 40Mb replay file of the RAF Falcons doing a parachute jump, I thought it was a waste of space. However, in hindsight, distribution of files of this size can really only be done on CDs as not many people would want to order around 20 discs with the file on, and 40Mb doesn't make too much of a dint in the 600Mb+ of space available anyway.

There's a large amount of educational software which I was glad to see, as there is quite a range of educational PD software which schools rarely get their hands on because teachers do not really think to go to a PD library for school software. Most of the creations are very specific though and will only be of use in special cases. I was very impressed with the driving test simu-

Get your PD on CD

lator and anyone who is taking their test soon might like to have a look at it.

PDCD4 contains both ArmLinux (for the A5000) and RiscBSD (for the RiscPC), along with some Unix tools such as a large C library for example. This all takes up around 200Mb of space, which is a big chunk if you aren't too interested in Unix parts of the CD.

I was glad to see that the Datafile still recognised the importance of the Acorn Pocketbooks and have included numerous applications such as a fax and terminal programs.

As for the software on PDCD4, it is varied and of very good quality. Most of the applications are new releases and the rest are updated versions of older well-known programs.

RiscDisc 3

RiscDisc3 comes in the usual fancy CD box which fits in neatly with the previous CD-ROMs. Owners of the previous RiscDiscs will be completely familiar with this CD as the same general layout prevails – with *!ArmMovie* and *!ARPlayer* in the root directory and the RiscDisc catalogue too.

I was pleased to find out that owners of StrongARMs can now use the RiscDisc 1 and 2 catalogues if they use the patch supplied on the RiscDisc3 CD. I'm sure it became tiresome not being able to access the old databases.

Many of the files on the CD are StrongARM compatible – indeed the CD was released to coincide with the launch of the StrongARM. All applications which will work on the StrongARM have a logo splashed across the entry in the catalogue on the CD.

A number of ElectronicTexts from Project Guttenburg are supplied and these should come in very handy for teachers– they can simply drag the text to a DTP



A screenshot of the opening screen of RiscDisc3



The Apollo spaceship landing on the moon

application and print it out.

Unlike PDCD4, only RiscBSD is supplied, but this still takes up around 125Mb of the space! The main section of the disc, which contains all the PD, is also about 125Mb, which isn't too bad considering it's all new or updated versions since the previous CD.

The Internet directory contains a number of useful applications, however being online I found I had most of them already, though the collection would be very useful for beginners.

One thing I like about RiscDisc is that Uniqueway includes data from a number of locations on the Net, so people who don't have access still have a wealth of information. The Acorn FTP site, Connor, Maxtor, Psion and DEC – the makers of the StrongARM – are just a few examples of sources of information.

The Acorn Clan directory contains the entries for a competition run by Acorn to design new icons for RISC OS. If you're getting bored with the bog-standard look of your desktop, a mixture of the icons from the 28 entries might modernise or brighten the place up.

The general software selection on RiscDisc3 struck me as being very well thought out. I did find a number of applications that didn't work on my system but these were few and far between.

The resources directory on RiscDisc3 contains a large number of graphics files in different formats, notably GIF, JPEG, MPEG and Replay. These come in handy when you need some high quality clip-art for a document.

However, the ImageBank system in the JPEG directory failed to work properly so I had to root around in the directory structure. The clip that caught me most was the 800x600 full screen of the first moon landing. I had to copy the file over to a RamDisc rather than view it straight from CD-ROM, but it was worth the wait.

I was slightly disappointed to find that Uniqueway is no longer running the competitions from the previous RiscDiscs. The RiscDisc2 competition was very difficult but the winner did earn himself a RiscPC! Hopefully when the next RiscDisc is released Uniqueway will have organised another competition, possibly with a prize.

Conclusion

Both these CDs have a major slice of their space taken up by RiscBSD and ArmLinux, and if you are not interested in these there is a lot of valuable space wasted. However, if you are interested in installing RiscBSD on your computer it may be a better idea to get one of these CDs rather than the specific RiscBSD release copies from the respective authors, as you get more for your money.

I was interested in trying out RiscBSD but was quickly put off the idea when the Datafile installation guide said that a new hard disc of around 500Mb might be a good idea. I might try it in future but for the time being I'll be leaving RiscBSD to lurk on the CD-ROMs.

These two excellent CD-ROMs both surpass their previous releases and would be of great interest to people wanting to install Unix on their machines. However, if you want a CD packed with as much general public domain software, clip-art and sound, and you aren't interested in Unix I would tend to recommend RiscDisc2 or PDCD3 in preference. AU

Product details

Product: PDCD 4
Price: £25
Supplier: The Datafile
Address: Willoughby House, 89 Woodville Road, Boston, Lincs, PE21 8BB.
Tel: (01205) 354203
Web: wwwdatafile.demon.co.uk

Product: RiscDisc3
Price: £25
Supplier: Uniqueway Ltd
Address: 3 Clarendon Road, Cyncoed, Cardiff, CF3 7JD.
Tel: (01222) 464020
Fax: (01222) 440071
E-mail: sales@uniqueway.celtic.co.uk

Opinion

FEATURE

I used to be a computer critic

Colin Woolf discovers that computing can be a pleasure both in business and at play

OK, so I admit it! Not so long ago I was saying that computers are a waste of time and money because the tasks they performed were ones which I could do much quicker myself; for example, writing letters or doing page layouts, or even the creation of artwork such as a company logo design. I maintained that it took so long to draw simple shapes and write letters (and then print them out with an addressed envelope), that it was far quicker to do it yourself manually.

Well, things are different now I write all my letters and print all my envelopes (well nearly all of them) from the letter displayed on the screen and yes, this is achieved in a shorter time that I could write them.

Of course the real benefit of using a computer is the ease with which one can make just a slight alteration to that letter and print it out addressed to another person. Now that is a real reason for using a computer. If you only write one of two letters a week – do it by hand. If you can only type with one or two fingers – still do it by hand, it is quicker.

What changed?

The reason for this government-style about turn of mine is simple – I have invested money in the computer system that I think makes my job easier. An Acorn Risc PC. I now feel that I can do productive work in less time than it took by hand; I can change designs slightly in a few seconds and I can print out what is on screen.

What I am really saying is that unless you have the right tool for the job you cannot do it effectively. That applies to computers more than anything. I used to do everything on an A440/1, which did all I wanted, but slowly, so I was often discouraged from working on it. I came back to – "this is quicker by hand...." too often. So I bought a new Risc PC (at considerable expense – remember, I am a professional artist and not wealthy). This transformed my evenings and my work, so I now earn money from the design work I do on the machine, and my productivity in front of the computer has increased to such and extent that I actually enjoy working on it.

This is due not just to the machine, but also the software. The choice of package can seriously affect your work and your output. I have been using *Ovation* for years on the old 440/1 and refused to change to *Impression*: when I have tried it, it takes twice 4x the time to load a file, that file is also bigger when saved to disc, and the interface meant that I spent too long trapped in menus. In other words, I wasn't doing my work. Since *OvationPro* has come out, I have been astounded at its speed and ease of use. This, combined with *Keystokes*, an incredible utility, makes working on the



computer a dream, and *ArtWorks* is almost redundant. did you know that the humble Ovation has always been able to draw lines – Impression has never been able to.

I mentioned that my productivity had gone up and that I earned money from the computer – well to give you some idea of scale, my humble Risc PC can now scan, laser or inkjet print, is fitted with a StrongARM and has enough memory to make it a waste of time quitting programs from the icon bar. All this from designing in the evenings.

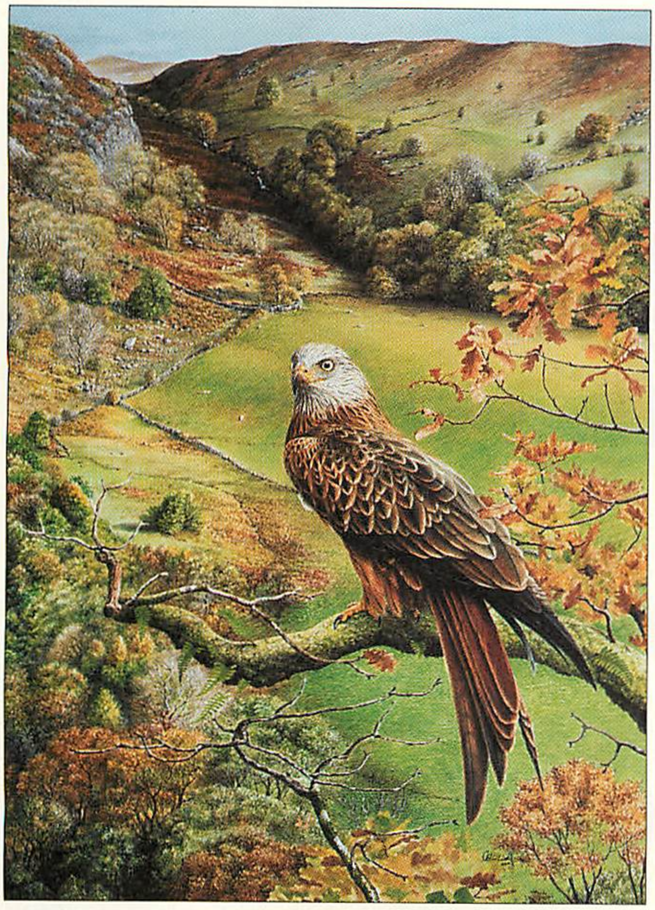
All work and no play

Now don't get me wrong, I do use the computer for play as well. Unfortunately, this has caused me some grief as the Acorn platform is not well served with flight simulators. My passion for Sims is for one reason only – it is almost impossible to fly the same mission exactly the same way twice, and there are so many more things you can do. Compare this with Doom once you have completed one level, is there really any point in doing it again? So, yes you guessed it, I bought a PC card with my Risc PC. Well, I was in for a shock – never having used Windows before, I assumed that it was another name for those windows on our own Acorns. After the one and a half hours it took to install the 20Mb or so of Windows stuff, I was a little in awe of the PC.

Top gun

What I have learnt in a year, is that PC magazines are economical with the truth, inflate your expectations and never criticise products in the same way. Basically what you have with Windows is a DOS program that tries its hardest to convince you, the operator, that you are in front of one slick machine. No, I'm sorry it doesn't work. I used to ask friends why the disc light was always busy when the screensaver was running – well, now I know, and I will never criticise any Acorn machine for being slow.

To get back to the flight sims, I tried a few demo discs with very little success but managed to have some real fun with a joystick talking through the Acorn to the PC card, running a WWII game shooting down ME109's and Spitfires. If like me you looked in envy at all those numbers in front of the MHz figures for the new 5x86 PC cards – well think again. I recently installed a 133MHz 5x86 card from CJMicros, hoping that I would now be able (with the new *!PCPro* and VESA drivers) to run some real flight sims. No sorry it doesn't work – well not strictly true I'll grant you, you can run flight sims like *!TopGun* – fire at will, but what you have to understand is what I said at the begin-





Examples of Colin Woolf's artwork

ning of the last paragraph.

PC magazines and games designers don't tell you the truth – they mislead you into thinking that you can play this on a 486/DX2 with no problem – sure you can, you can also play Beethoven's 5th on a tin whistle. Of the numerous reviews on Top-Gun which I read, only one spoke the truth: (to quote): "unless you have a Ninja PC, it (the plane) turns like a supertanker doing a U-turn...." well that is fair comment, and it runs faster than that on my 133MHz chip in the RiscPC. It is just about playable, you can fly about and dogfight after a fashion but this is all in low res mode with no sound or special effects.

If you read all the mags (as I did for a decent flight sim) you will see all the talk of "Gorgeous texture mapped polygons...." ".....superb textured fractals with real video, fantastic explosions and the Dolby sound is superb..." and all screen shorts look brilliant. Yes, sure they do on a 400MHz Pentium with 64Mb memory, 4Mb 3D Video card etc,etc...!

All hype

I have been assured by one reliable PC games supplier that not even the latest 'State-of-the-art Ninja PC' will run games like this in the full high res mode. So why all the hype telling us that it is such an amazing game? Well, I think I have finally realised that the hype is there to keep us all interested.

The truth is that if we don't keep buying the games and upgrading our hardware, we won't have any decent equipment in the future. There are at least four thick monthly magazines on the shelves devoted to PC games – no hardware, just games. OK, so there are only 35 pages of articles in the 350+ pages of *Computer Buyer* – the rest is adverts for this or that amazing PC. Now come on – this is exactly what it is all about. The reason they have all those adverts in there is to sell all that stuff to people like you and me in the PC world. We are incredibly well served with Acorn magazines which have a comparable editorial and review content, but not the same advertising and thus not the same income.



So, get out there and spend your hard earned dosh on some kit and then get some software under your belt. This is the only way we are ever going to see the Acorn platform expand. We have the best machines around, we want the best software and games and it's not going to come unless we pay for it. Only then will the developers be able to afford to write the stuff.

So when you find out that the people write your favourite games software are now writing for the PC market – are you really surprised? This is true of the best game on the Acorn, *Starfighter 3000* – this game visibly speeds up as the craft which you are flying accelerates, and the movement is so fluid that you can fly around anything – really impressive compared to any other game I've flown. The software developers are now writing for 'other platforms'!

They may laugh but..

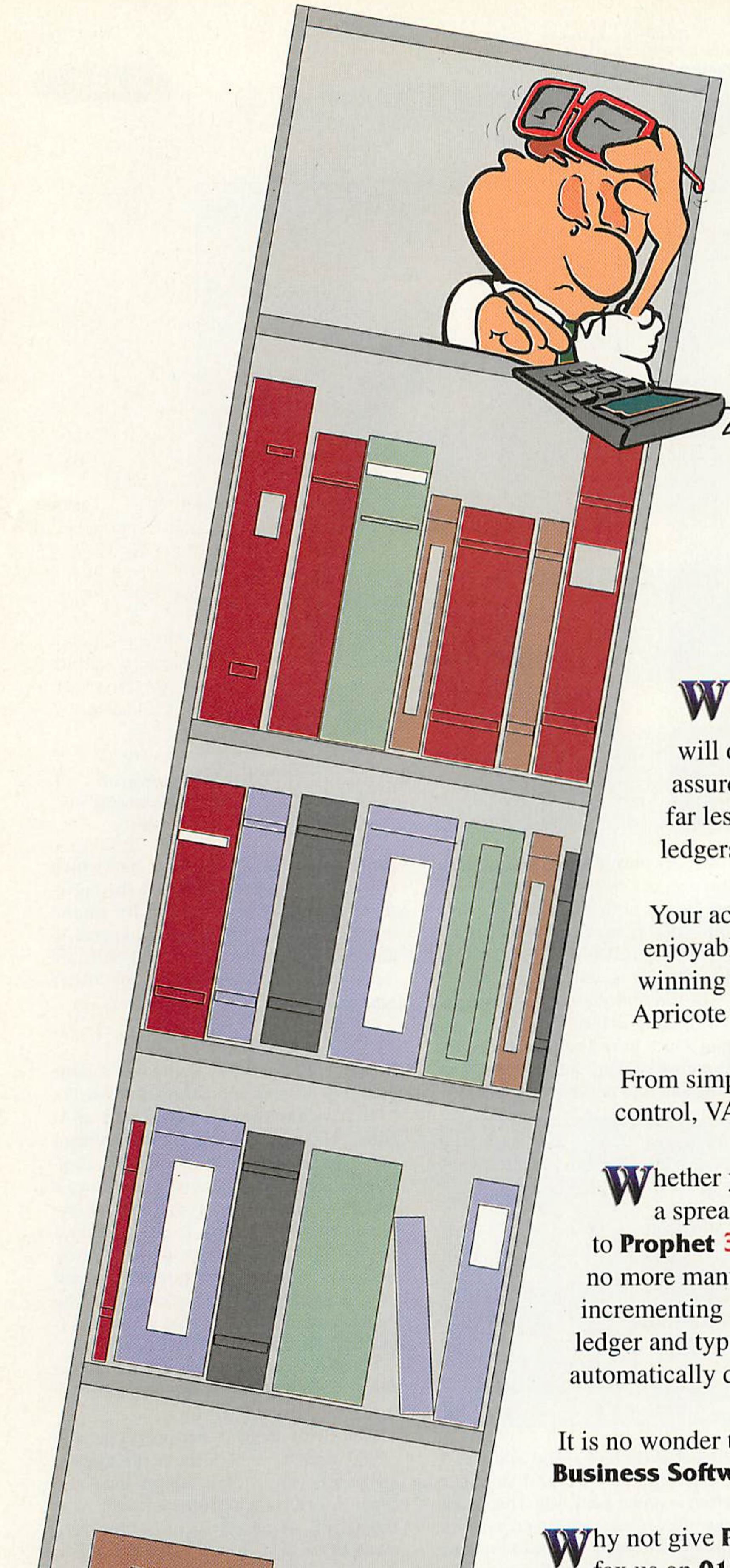
Recently, a client came round to see some paintings of mine and noticed the Risc PC, "What's that then?", "Well, it's anAcorn...." – you know the rest. By the time I had removed a bikini from a already scantily clad female in !Photodesk and thrown a few JPEGS around he was on the floor crying his eyes out as *he* has to go and make a cup of tea while !Photoshop (on the new whizzo PC he has just bought) does a small processing task on a fairly large file. The PC he bought, by the way, cost him as much as a Risc PC would have done.

Needless to say he won't go and buy an Acorn, 'cos all his mates will laugh and say that there is no software for it.

Well that's about it, but just to put the record straight: a 133MHz in the Risc PC apparently runs a flight sim at about the same speed as a 60/90 Pentium or a 100MHzPC. Windows 3.11 does run very much faster than the old PC card and yes, Doom is very playable – but if you want to get the truth behind the specifications they give you for the minimum to run such and such a game, its easy – just double it! Yes – so a Pentium 60 becomes a Pentium 120 and then don't be surprised if you still have to turn all that gorgeous detail down to make it run smoothly!

Have you seen the heat sink and fan on the 133MHz PC card, WOW!

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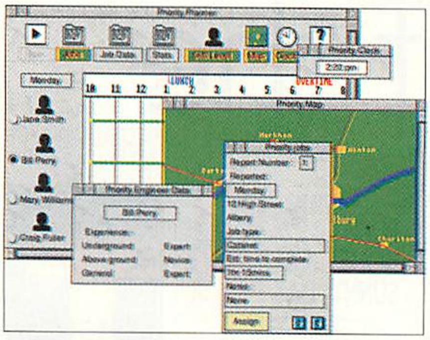
Get your priorities right

BRITISH TELECOM is the latest company to apply its skills to producing educational material. Unlike many products conceived in the world outside school, this is not a multi-media presentation produced by a generic authoring tool, but a purpose written application specifically designed to support the modelling strand of the National Curriculum Key Stage 4 Information Technology.

Priority is a simulation which models the decisions taken by the manager of a group of four BT engineers. Pupils assume the role of the manager and allocate repair work to engineers.

The software is supplied on a floppy disc and is effectively a timeline on which repairs are assigned to the engineers at the start of each day. The time taken to do each job is pre-determined and includes travelling to and from the site.

The four engineers should be assigned jobs so that the most urgent ones are dealt with first. There is the offer of overtime but clearly this should be avoided if the budget is a little tight. During the course of the day engineers may 'ring in' to say that the job will take more or less time than anticipated, in which case jobs may need to be moved.



Plan out the work carefully so that the engineers are busy, not overworked and are not given too much overtime. Oh yes, and make sure the jobs get done!

Priority is a complete and very well presented resource which will be a valuable asset to any IT department. Apart from the floppy disc, the pack includes a teacher's guide, plastic coated photocopiable worksheets with a variety of activities and help notes plus information sheets containing a planner and map. These may be photocopied as required and together with the software make a good couple of lessons work.

The material is most suitable for Key Stage 4 although some Key Stage 3 students may benefit from its use. It addresses IT attainment targets 4c onwards, 6d onwards and 10a.

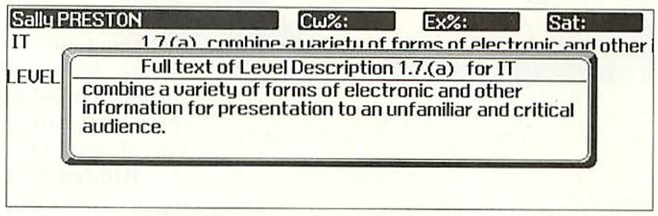
Priority can run from the floppy disc but is better copied onto a local hard disc or onto a network. It costs £15 and is available in Acorn and PC versions.

For further details contact BT Education Service on 0800 622302 or BT Education Centre BT Centre, 81 Newgate Street, London EC1A 7AJ.

Setting the record straight

STUART FORBES of H.S. Software wishes to take issue (in the nicest possible way) with a comment I made about *NStore* while actually reviewing a product from one of his competitors. He quite rightly points out that in addition to the report writing facility, NStore is a very accomplished record keeping program with many advanced features which accounts for the higher price. In addition, it comes with over 700 teacher statements and more significantly, every National Curriculum attainment target for every subject. This in itself adds to the cost, as significant royalties have to be paid to HMSO for the use of the statements.

While on the subject of NStore, now might be suitable opportunity to give news of a forthcoming upgrade. The next version which should be available about now, has many new or improved features including vastly improved data transfer between the desktop version and the Pocket Book version. A demo version can be downloaded from H.S.Software's Web site http://argonet.co.uk/h.s.soft



Both the desktop version and the Pocket Book version of NStore contain all the National Curriculum Orders for all subjects and all Key Stages

H.S.Software may be contacted on (01792) 390198 or fax (01792) 390198.

Top marks

THANKS TO Adam (aged 14) for his letter of January 12 1997 regarding programming his Acorn Risc PC. For people of this age, I believe the most valuable thing you can do with a home computer is to use it to produce high quality work for your school lessons.

Use a good DTP program like *Publisher* by Computer Concepts, a good database (Iota's *DataPower*) a spreadsheet (*Eureka*) and a graph handling program like *Graphbox* by Minerva. If you've got Acorn computers at school, why don't you do what my children do – create work on a multimedia authoring program like SEMERC's *Ultima*, generate a stand-alone version and hand that in on disc as your homework/assignment? Check with your teachers first as they must have some means of reading a disc.

The Acorn range of computers is unique in that it has a built in programming language: BASIC. It's about the best version of BASIC available but if you are really serious about programming (ie with a view to becoming a programmer) then the only language you should consider is C (or the later versions, C+ and C++). You will, of course, need a C compiler and the general thinking is that Beebug's compiler is about the best. That comes with an excellent introduction to programming in C+.

Contacting me

You can contact the Education page by writing to me, Geoff Preston at Acorn User, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP or by e-mail to: aueduc@idg.co.uk

Big surprises down at the woods

Geoff Preston meets 'every bear that ever there was' in Sherston's new early years program



There are six different activities, each developing a wide range of skills

The *New Teddy Bears' Picnic* is an activity program for pre-school/Key Stage 1 learners. It is on three levels with six activities on level 1 and five activities on levels 2 and 3. All activities can be used with either one or two players. The activities are varied although they all have the 'bear' theme running through them. The theme is not restricted just to teddy bears, but also focuses quite seriously on real bears (and creatures who are mistaken for bears like Koala's).

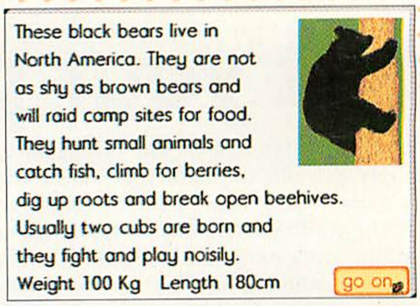
- **Musical Hats.** This activity is intended for pre-school children and hence will only run in level one. It is intended to help children with counting and simple subtraction and is an excellent introduction to using the mouse and keyboard.
- **Fusspots.** This is a series of simple exercises involving logic, estimation, counting and sharing. This is another clever activity where the child has to sit the bears at the picnic table so that every bear sits next to their best friend.
- **Picnic News.** This activity involves creating a newspaper front page. Some of the features are really clever like the simulation of taking a photograph. The user must enter a headline, enter the correct date (which is checked against the computer's internal clock, so you need to make sure it's correctly set), choose the layout and add some captions to the picture. At levels 2 and 3 you can add a wordsearch. Adding some small-ads and the day's weather complete a very carefully thought out activity.



This early dtp task requires a range of skills including decision making and some elementary design. This task is great fun especially if shared with a friend

- **Hidden Pictures.** This is a counting activity. Clicking on one of the stars on the screen displays a number of bees. To answer, select the paint pot with the correct number on the side. Each time the number is correctly counted, a piece is added to the picture. At the end is a simple animation. Great fun!
- **Bear Facts.** Without doubt, this is my favourite. Bear Facts is a simple comprehension exercise where children read a short passage about a bear and then select the correct information about it (domicile, diet, weight and height, and whether or not it actually is a bear). The information about each bear is held in a 'drawer' in a sort of chest of drawers - a datafile in fact. The child must open the correct drawer for each of the five categories of information.
- **Teddy Facts.** The last activity is for a group of 10 to 20 children where each child creates one record for a datafile about, guess what, teddy bears. Once created, the records can be sorted and searched. This is an excellent introduction to database work and offers considerable scope for development.

All of the activities begin by asking the child to enter their name and this is achieved by clicking on an on-screen 'keyboard'. Yet another activity to promote spelling and using the mouse to select.



Bear Facts. This early comprehension task, coupled with a database of different bears (and 'bear-like' creatures) is excellent

Teachers' page

Certain features of each activity can be controlled by the teacher including sound, date format and printing. There are also several keyboard key combinations which will enable the teacher to intervene. For example, at any point during a game, CTRL+T will go directly to the teachers' page. There is also a very helpful overview of each activity.

As with all of Sherston's software, there is a great deal more in the pack that just a couple of discs. Along with the manual is a booklet entitled Educational Ideas which is well worth reading to give both parents and teachers some ideas of how the material can be best used and how work could be developed. Also included in *The New Teddy Bears' Picnic* are some worksheets which enable children to further learn about bears, explore colour mixing and carry out some elementary craft by way of card models to cut out and colour. There is also a reading book about the teddy bears' picnic.

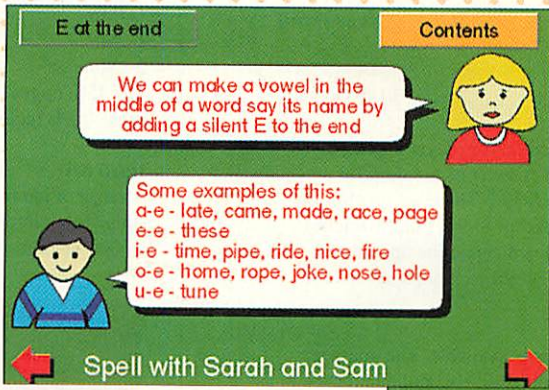
This is a very well thought out program with lots of appropriate activities covering a wide range of skills. It is certain to enthral children who use it. AU

Product details

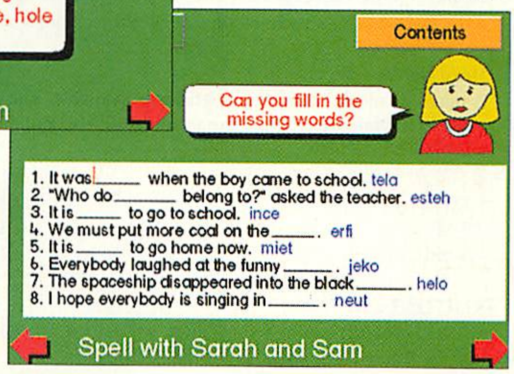
Product: The New Teddy Bear's Picnic
Supplier: Sherston Software
Address: Angel House, Sherston, Malmesbury, Wilts, SN16 0LH
Tel: (01666) 840433
Fax: (01666) 850048
E-mail: info:sherston.co.uk
WWW: http://www.sherston.com/
Price: Single User costs £32.95, Primary Site Licence is £49.43 (prices exclude VAT)

We have lift off!

Beth Lofting reports on an exciting new software series, Launchpad for Learning from CSH



Sarah and Sam's rules and examples



Can you find the missing words?

Cambridgeshire Software House has a well deserved reputation as the producer of some of the best British educational software. *Frontier 2000*, *The World of Robert Burns* and now *Arthur and the Knights of the Round Table*, award-winning multimedia creations of the highest quality.

CSH has also recently announced a new series of software called *Launchpad for Learning* which is aimed at the 5 to 11 age range and Special Needs in secondary school. Launchpad is designed to develop and consolidate basic skills in the classroom through a curriculum based approach. *Literacy*, *Numeracy*, *History*, *Geography* and *Science* modules are planned and the first of these, *Spell with Sarah and Sam* was unveiled at BETT.

As the title suggests, Spell with Sarah and Sam is a software package that deals with the complexities of spelling in the English Language in an easy to understand way. Spelling rules are grouped into different modules, based on a common theme. Each rule is introduced by Sarah with examples given by Sam. Children are then given a series of sentences with a word missing. They have to insert the missing word, with the help of an anagram, if required.

The words follow the rule given by Sarah. If this page is completed successfully the children then move on to the next page which lists some of Sam's examples. Unfortunately they are in the wrong order so the next task is to re-arrange them into alphabetical order. This done, the children may proceed to the next exercise where they have to answer questions, the answers being words that follow Sarah's rule.

Spell with Sarah and Sam contains over 50 common spelling rules divided into seven modules covering topics such as words ending in E, doubling, Y and I, plurals and sounds altered by certain letters. In addition there are sections on which spelling? and prefixes and suffixes.

The software is fully teacher configurable, with the option to print individual pages, the ability to switch the anagram help on or off and the option of sound. There is also an option which allows the teacher or parent to write their own questions in the form of an *!Edit* file for any particular rule. The software also keeps a record of each child's progress through the program which is very useful to ensure continuity and progression in a child's learning.

In the classroom

Using Spell with Sarah and Sam in the classroom has proved very successful in a variety of ways and enables the teacher to use the software package with flexibility and progression. The program allows the teacher to work through the rules in a progressive way to develop a pupil's spelling skills and also allows the teacher to concentrate on individual rules where a problem may exist, either with an individual, or as a group or class.

The facility that allows the teacher to edit the questions proved particularly useful as it offers the opportunity to tailor the questions to the needs of individual children. The children enjoyed using Spell with Sarah and Sam, finding the rules easy to understand and apply, and they enjoyed the unravelling of the anagrams. Their learning was reinforced by ordering Sam's examples and they enjoyed the challenge of the questions, persevering when the answers proved difficult.

The certificate awarded at the end of each module proved to be a great incentive to learning. The printing option allowed me to produce a hard copy of Sarah's rules for classroom display thus reinforcing the learning. The children kept word books containing Sam's examples and the words they had learned while working through the questions. New words could be added following Sarah's rules which led to a competition to see who could gather the most examples.

In conclusion

Spell with Sarah and Sam is the first in the series. It is well thought out, flexible and fun and I wouldn't hesitate to say that it should be in every primary classroom. It is a piece of software that can be used again and again for practising the basics of spelling and is timeless. I can't wait to see *Write with Pippa and Paul*, the next in the Launchpad series, which deals with skills in writing in the same way. Who needs expensive packages when you can have this. Launchpad for Learning is ready for lift off in a big way. AU

Product details

Product: Launchpad for Learning – Spell with Sarah and Sam
Supplier: Cambridgeshire Software House
Tel: (01487) 741223
Fax: (01487) 741213
E-mail: 106066.2173@compuserve.com
Price: £15 Single User, £30 Primary Site Licence, £45 Secondary Site Licence

A3000 upgrades

Memory

1-4Mb	£68 (79.90)
(See also the "2nd user" section)	
2-4Mb upgrade pack	£45 (52.87)
4-8Mb	£149 (175.07)

The above upgrades are all constructed on four-layer boards, as recommended by Acorn. Gold plated connectors are used for reliable contact with the A3000 main board. There are no clips or wires, and no soldering is required (except 8Mb). Full instructions supplied. Some older types of 2Mb board cannot be upgraded to 4Mb, but we offer a trade-in allowance. Please phone for details.

Hard drives

A range of internal hard disc upgrades is available. The upgrades simply plug into the internal expansion slot. Also suitable for the A3010.

120Mb	£129 (151.57)
250Mb	£149 (175.07)
420Mb	£169 (198.57)
RISC OS 3	£39 (45.82)
ARM3 (25MHz)	£129 (151.57)

(Dealer fitting recommended for the ARM3)

A3010 upgrades

Memory

1-4Mb	£79 (92.82)
1-2Mb	£35 (41.12)
2-4Mb	£61 (71.67)

The 4Mb upgrade is constructed on a compact four-layer board. No soldering is required. Full instructions supplied.

Hard drives

A range of internal hard disc upgrades is available. The upgrades simply plug into the internal expansion slot. For prices, refer to the A3000 section.

A3000 4Mb RAM £68 (79.90)

RISC PC 16Mb SIMM £59 (69.32)

RISC PC

SIMMs...(please phone for latest prices)

4Mb	£16 (18.80)
8Mb	£30 (35.25)
16Mb	£59 (69.32)
32Mb	**£99 (116.32)**

16Mb SIMM to 32Mb upgrade
£65 (76.37)

(By upgrading your 16Mb SIMM to 32Mb you don't lose a SIMM socket. ¢iginal 16Mb SIMM must be returned to IFEL and the type must be suitable - most are. Please phone to check first or ask for our free leaflet.)

RAM packs for upgradable SIMMs

4Mb-8Mb	£24 (28.20)
16Mb-32Mb	£65 (76.37)

Each pack consists of 8 chips which simply plug into empty sockets. Instructions supplied, no soldering needed.

VRAM modules...

1Mb	£79 (92.82)
2Mb	**£88 (103.40)**
1Mb-2Mb upgrade	£59 (69.32)

A5000

Memory

2-4Mb	£67 (78.72)
4-8Mb	£149 (175.07)

Dealer fitting for the 8Mb upgrade is recommended for the 25MHz A5000.

A3020/A4000

Memory

2-4Mb	£64 (75.20)

Hard drives

120Mb	£73 (85.77)
250Mb	£95 (111.62)
420Mb	£115 (135.12)

A400/1

Memory

Per Mb (up to 4Mb)	£30 (35.25)
4-8Mb	£149 (175.07)
RISC OS 3	£39 (45.82)
ARM3 (25MHz)	£129 (151.57)

Hard drives. For prices, refer to the A310 section.

Various

Alsystems SCSI 2	£170 (199.75)
ARM3	£129 (151.57)
RISC OS 3	£39 (45.82)
MEMC1a	£39 (45.82)
MEMC1a (2nd User)	£20 (23.50)
Hard disc cradle	£6 (7.05)
Fan filters (pack of 5)	£3 (3.52)
RISC OS manuals, no vat	£22
Dongle dangle	£6 (7.05)
Chip extractor tool (for eg MEMC, ARM2)	£4 (4.70)
CDFS upgrade for Oak SCSI card	£25 (29.37)

The following item is reduced to clear. Please phone to check availability.

Wordworks	£23 (27.02)

A310

Memory

4Mb	£85 (99.87)
4-8Mb	£149 (175.07)
Backplane (4-slot, four-layer)	£49 (57.57)
Fan for above	£8 (9.40)
RISC OS 3	£39 (45.82)
RISC OS carrier board	£17 (19.97)
ARM3 25MHz	£129 (151.57)
MEMC1a	£39 (45.82)

Hard drives

850Mb IDE	£125 (146.87)
1Gb IDE	£135 (158.62)
IDE controller	£65 (76.37)
1Gb SCSI	£199 (233.82)

2nd User

Please phone to check availability.

A3000 1-2Mb	£15 (17.62)
A3000 RAM board (ie bare board, no chips)	£5 (5.87)
A5000 2-4Mb	£38 (44.65)

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VISA

GAME SHOW

Steve Mumford brings us up-to-date with what's happening on the Acorn games scene

I'm pleased to say that I've had a great number of requests for *StrongCache* and *CrunchFix*, the two freely available utilities I mentioned last month that allow the StrongARM processor to play games which would otherwise fail less than gracefully.

I've since heard from Stuart Marshall of Spidersoft – the company's been working on an enhanced version of StrongCache and will be releasing it in the near future. This improved module will allow finer control of the cache, hopefully enabling even more games to work. Stuart also told me of a feature they hope to include in the forthcoming commercial release of StrongCache – if all goes well, it might be possible to play the majority of games released by Krisalis under a form of emulation. I'll let you know as soon as I hear any more details.

Meanwhile, Stuart has uploaded the original version of StrongCache onto all the major bulletin boards and it's still available from the Spidersoft Web site at *http://www.argonet.co.uk/spidersoft/*. If you don't have Internet access and would like to try out this utility, just drop me a line with a stamped addressed envelope and enclose a formatted floppy disc.

The Dragon's Quest

Those of you who enjoy dabbling in the convoluted world of interactive fiction might like to hear of a new product being developed by a small programming team known as Skullsoft. Chris Egan and David Taylor have almost finished work on a game entitled *Arya: The Dragon's Quest*. Although it's primarily a text adventure, it does contain a sizeable helping of graphics, including a few graphical puzzles. The scenes were photographed by Chris and David and scanned in before being processed, and *TopModel* was used to create some of the graphical puzzles. There are over 320 locations and 800 objects, and plenty of characters with whom you may interact.

The story opens with your character being falsely accused of summoning demons, followed by a meeting with a rather mysterious dragon who has a little favour to ask. I've not seen the game yet but I'll bring you more information as soon as I've tested it. If you'd like to learn more about it, Skullsoft have set up a Web site at the following URL: *http://www.argonet.co.uk/users/egan/*

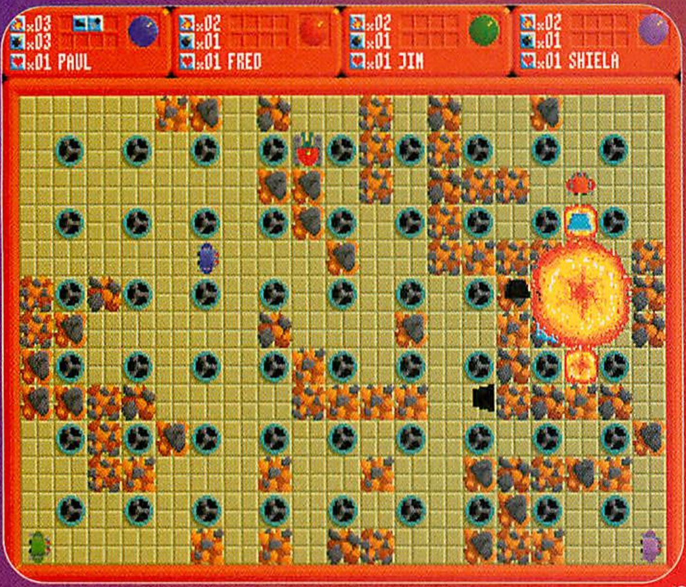


The Kindred

I'll admit it – I've got quite a few pet hates. One of them concerns aggressive hyping of products that starts as soon as the pen hits the drawing board. It's a hard task to sieve through the propaganda and determine which games are going to make it through to the outside world and which are destined to become vapourware, only to be mentioned in "Whatever happened to..." news postings on the Internet in years to come. What winds me up the most are companies who make promises that they resolutely fail to keep – release dates are my particular *bête noir*, and I think it's highly unfair for businesses to persist in claiming that their game is 'almost ready' and will be released 'really soon' for six months or more.

It appears I'm not alone – I've received

GAME SHOW



some information from Chris Joseph pertaining to a new group of programmers called 'The Kindred'. They describe themselves as a loose association of people writing games for the Acorn platform. Chris goes on to say that the group was formed as a result of its members-to-be becoming bored waiting for good Acorn games to be released, so they got together to try to rectify the problem. Chris says there was also a recognition that the market was being damaged by people who hyped games that were never to be released, so the Kindred have deliberately tried to stay low-key.

However, I've got a few bits of information for you – the group has three major projects in progress, although I do know of a few more that might or might not see the light of day. First up to the plate is a strategy game in the style of *Civilisation*. It's being written by Chris Gilbert and the aim is to have it multitasking under RISC OS with support for all modes. A fair amount of code exists already – all written in assembler – and the hope is that a demo will be ready in time for the Wakefield Spring show.

Dave Brown is writing a game creation engine that's similar to *Repton Infinity*, suitably enhanced for the latest Acorn machines, and Chris Joseph is writing *Moles*, a game similar to *Worms* on the PC. If you haven't seen that, try to imagine a cross between *Tanks* and *Lemmings* and you're halfway there. Anyway, Chris hopes to implement a 'weapons pack' system so that extra weapons can be installed as a form of plug-in. Real-time network play is also a possibility.

Well, that's enough for now – I admire their candour and I wish them the best of luck. All that remains is for me to tell you that the Kindred are a little short of graphics artists and musicians, so if you'd like to offer your services, drop me a line and I'll put you in touch.

Werewolf recruitment

Dane Koekoek has dropped me a line to inform me that Werewolf Software, the team behind *TANKS*, are working on another game for release in March or April – more news as it happens. He also asked me to make the following announcement: If you're working on some software for the Acorn and have no one to market your product, get in touch with Werewolf Software. They're always on the lookout for new programmers so if you've some code you think the world might want to see, contact Dane and give him the details. Point your browser at *http://www.werewolf.demon.co.uk/* or e-mail *dane@werewolf.demon.co.uk* for more information.

Marsquake update

Paul Taylor has been hard at work on his sequel to the original *Bomberman*-style game *Moonquake*, and it's time for a quick update. A lot's been happening in the game engine – along with all the other bonuses and hazards that Paul mentioned last time around, there's now a brand new peril. One of the mystery bonuses will make your backpack spring a leak, leaving a highly flammable trail of fuel wherever you might run. If any naked flames touch this trail, the fuel will ignite and make its way back towards you slightly quicker than you can run.

Whereas Moonquake only had one form of enemy, the sequel provides many different types, all with their own 'personalities'. Although none is particularly intelligent, they have their own movement routines that govern whether they chase the nearest player or simply wander around aimlessly. They've also got three different speed settings so each breed of monster will behave and move in its own unique way.

The first monster to be implemented was the 'bomb eater' – a little robot that roams around randomly, disarming all the bombs it comes across. It's more of a nuisance than a threat but it's conceivable that it might actually help out from time to time. Wandering bomb creatures also exist and these can either wander about or make a beeline for a specific player. Fire or explosions will cause them to detonate with some force – otherwise they'll explode as soon as a player comes within range. It's also possible that you will bump into ghosts – these move in the same way as the wandering bombs but at a slower pace and they float through walls. Of course, they're fatal to the touch.

The fourth and final creature at present is the Spryt – a simple plasma creature that follows a set path, detonating bombs and lighting trails of fuel as it passes by. It's not harmed by explosions and it's deadly on contact. Only a plasma protection suit will save you, in which case the Spryt itself is extinguished.

There's more news to come and owners of older machines might be pleased to hear that Paul has been doing some of the recent development work on an A3020 and reports that the game runs at around 50 frames a second, with the odd dip on slower machines if the screen is full of explosions and bombs. This only happens occasionally, and as Paul says, "If Super Bomberman on the SNES can get away with it, so can Marsquake".

And finally

Before I go, I'll just tell you that a demo version of Ben Ollivere's *GameSuite* is now available at Grasshopper Software's Web page – take a look at *http://users.ox.ac.uk/~sjoh0576* for access to the software along with more information.

Rambles through Acorn Wood

Another selection of problems and solutions from **Mike Cook**

I was brought up short last month. There I was feeling smug about all the processing power of the StrongARM sitting in my Risc PC 600 when I was shot down in flames. You see I got a new machine last month, not another Acorn, but a replacement for my ancient Mac IIcx. I've had this since 1990 and it was beginning to show its age, so I replaced it with one of the new Mac clones – a Star Max from Motorola.

It has a RISC processor of Motorola design in it, running at 160MHz. I thought it would be no match for my 220MHz StrongARM but I was wrong. While trying it out I looked at a PhotoCD of my holidays and decided to decompress a 1536 by 1024 image and when I looked at the screen there it was. A quick look at the information box revealed that the processing had taken 1.5 seconds although timing it with my watch revealed the total time to be about three – the extra was caused by the CD drive coming up to speed. I could hear it.

I was sure it took longer than that so I went back and checked – it took 50 seconds on the ARM610 and 20 seconds on StrongARM. In desperation I tried copying the image into RAM disc and it still took eight seconds to generate the image. I think what I was seeing was the lack of any floating point hardware in the Acorn chip, plus the fact that you don't get the best from the StrongARM with a motherboard that's just not designed for it. That just goes to show you can't be at the leading edge for long in this business.

While on the subject of Macs, they have a form of movie file called Quick Time Virtual Reality or QTVR. There are lots of examples on the Net. Basically they consist of a 360 degree panorama which you can scroll around by dragging the picture. There is also a bit of up and down movement as well and you can zoom in and out. If you zoom in too far the thing breaks up into pixels but nevertheless they look quite impressive.

I have downloaded panoramas of flight cockpits, recording studios and even a group of American punks hanging around the camera. It seems rather strange at first but you soon get the mental hang of it – it's amazing how much you are predisposed just to expect a single view of a scene. Don't worry, Acorn users are not left out here because Warm Silence Software has a RISC QTVR player for only £20. I saw it at Acorn World but I have only just got round to ordering it.

Incidentally I experienced a little difficulty with their MovieFS which allows me to look at Quick Time, AVI, WAV and AIFF files. I sent them an e-mail with my problems and got a useful reply from Robin Watts the next day – that's what I call support. Here's what was said:

Me: It won't play some Quicktime movies – sometimes there is nothing and on others there is only sound. I did manage to get a small one into *!Edit* and the header said: "Quicktime jpeg-24 unsupported". Any comments?

WSS: *There are some unsupported formats; notably JPEG and Indeo. Indeo is on the way and JPEG will follow later – but we are not promising when.*

Me: When MovieFS is installed, the CDFS will not forget CDs that have been dismounted. Whenever I try to play a movie it goes through the other CDs that have been mounted and then dismounted since switch on, asking me to insert them. Clicking on the cancel button works but it is still annoying.

WSS: *This is a bug in RISC OS to do with it not closing Image Filing Systems. Solutions are:*

- *Hit f12, and do a *SHUT or *CLOSE*
- *Quit MovieFS and run it again*
- *Toggle the options off in the MovieFS front end and the back on again.*

Sometimes the movie is displayed really big and more than fills the 1024 x 1024 screen. Yet when the same movie is played through the quick time player on the PC card the display is a much more reasonable size. This is Replay. It doubles the size of the picture to enable it to do dithering. Add the '-small' flag to Replay to make it work at the real size (in the Extra Args box).

Ian Roberts contacted me with a problem about monitors:

I've inherited a 12 inch monochrome monitor. I have a problem that I think is called 'persistence' when images and text take a time to vanish when redrawing the next screen. Is there anything I can do to remedy this, or can I throw it away? I seem to remember something about using a magnet on the field coils or am I barking up the wrong tree?

Yes you are – in fact you're barking in the wrong forest. The only way to change the persistence is to change the phosphor on the inside of the tube – not actually a DIY job. However, on some phosphors the initial trace is often at a different colour than the longer persistence so you could try using a coloured 'jell' filter over the screen. They make suitable types for theatre lights.

You could experiment by looking through different colours of cellophane to see which colour works best for your situation. I had exactly the reverse of this problem in the 70s with an amateur radio slow scan TV system – this sends an image over the radio in about eight seconds. This was in the days before home computers, so the only solution was a long persistence phosphor. The initial trace was blue and the persistence yellow. I used a yellow filter to cut down the bright part and enhance the long glow.

Ian continues with a supplemental:

How can I connect/switch my monitor (A5000 type) to an A5000 and a PC? I know I can buy a monitor switch but I thought it would be easier to knock one up. Could I convert an old two-way printer switcher that I have by changing the sockets?

The problem with making your own monitor switch is one of impedance discontinuities. That is where the impedance of a line changes, as it will when you simply use wire to go to switch wafers. The signals are subject to reflections at the discontinuities and this shows up as vertical stripe ghosting on high contrast edges on the screen. So the only thing you have to lose is that when you've finished it might not look so good.

Rob Hemmings provided me with some information about my search for a spell checker. He writes:

I was interested to see the comment in your February 1997 column wanting a spell checker for draw files. There is an application which does part of what you suggested (I co-wrote it) called *!Spellbank* which is sold by SEMERC.

It is mainly intended as a spelling helper for school children which can also keep records for teachers. However, it has an additional feature – it will attempt to spell check any type of file and output a list of unknown words. It simply searches through the file for strings of characters which could be words and compares them with its dictionaries (one master dictionary and two user dictionaries). The output list of unknown words is a standard text file which can be edited and printed and it can also be used to create a user dictionary which is then used by !Spellbank.

At the moment !Spellbank treats all file types (apart from *Phases* files for which it understands the format) as if they were text files and there-

fore when checking a draw file it may list some control information as incorrectly spelt words. It would be fairly easy to modify to treat draw files more intelligently and if there is any demand I would be happy to do so.

Thanks for that information. I can see how that would help teach spellings but it's not so useful for an old dyslexic like me. You see the problem with giving you a list of questionable words is that you first have to find them in the text and then correct them.

Often I find on my Mac spell checker it comes up with a suggestion that looks identical to what I have spelt – it's not of course but it looks the same to me. What I am saying is that it is very difficult for a dyslexic to see where a mistake is, even if you give them the spelling of the word. I really need a list of suggestions and the opportunity to replace words as they are encountered – looks like such a thing does not exist in the Acorn world.

Gareth contacted me and would like some advice on programming. He writes:

I am a Junior teacher and would like to write some programs which I could use to generate my own worksheet. I have done some programming in the past on the BBC B and I still use these programs. Is there anything I can get like Visual Basic which has built-in modules and icons etc to which I can add programming?

The good news is that your old BBC programs will still work with the latest Acorn machines – how many other systems could you say that about? It is still possible to hack out a simple Basic program just like the old days. However, now expectations have increased and you probably want to produce desktop applications.

With the hardware interfaces I write I often spend about 10 times longer getting the WIMP user interface correct than on the software that actually does the work. Now virtually any application can be written in the standard Basic so there is little demand for the sort of thing that is popular on other platforms.

However, there are a few utilities that will shorten the development process. A new one that has just come to my attention might just help, it is *WimpBasic* from Clares. This has graphical window and menu creates as well as variable and code editors. It is aimed, according to the advertising, at programmers who have not had the time to get to grips with the wimp environment. I haven't checked it out myself but it might just be what you're after.

James Chatterton was having a bit of trouble with his A3020. Basically he had stripped it down and wanted to re-build it in a bigger box. Unfortunately when he did, the sound stopped working. I advised him to use the computer's original supply, and he wrote:

I put the transformer back, meaning the computer was supplying itself again. Hey presto, back comes the amazingly dull, filtered sound. Hooray. Is it the +12v and -12v supplies which supply the power for the sound system? On the board is printed +12v and -12v, but technical reference manuals say that these are +12v and -12v supplies, so they could be in or out, I don't know.

A lot of my students get confused over this and I am quite at a loss to know why. If a logic board is marked 12 volts, 12 volts has to be put into it. If a power supply is marked 12 volts, 12 volts comes out of it. I supposed confusion only arises if you haven't a clue as to what is what.

His supplemental questions are:

I have also just bought a 31/2 850Mb IDE drive. How can I format two partitions to get around the 512Mb limit on filecore?

Finally why doesn't the computer like the IDE drive and an ATAPI CD-ROM in the same IDE socket? I know it wasn't physically designed to do it, but the programmers' reference manual does not say it can't do it, it just mentions the physical problems.

As far as I know there is no way to partition an IDE drive, only SCSI drives. Has anyone come up with this software yet? The IDE standard is, to put it mildly, loosely implemented on a lot of drives and this can and does cause problems. Some CD drives can be fitted directly onto the IDE bus and work well with suitable software drivers but many do not.

Those that do not can sometimes be made to work with a small signal buffer or interface card but it requires a lot of delving about into the drive – that tends not to be your average DIY job. Yes it is tempting to get hardware from budget PC dealers but you're just making the Acorn market smaller and driving out another dealer with the knowledge to make things work.

Ian Entwistle has his computer stuffed to the gunnels with RAM and he has come across a problem:

In the few months I have been using a StrongARM Risc PC fitted with 64Mb of RAM I have become increasingly puzzled by the frequency of *not enough memory* messages. On investigating each occurrence I have noted that the problem appears to be caused by a restriction of 28640K of the Next memory value. Any attempts to use the memory bar control of the Task manager results in a maximum of 28640K Next memory being set whereas Free memory can be extended to use all the available memory.

It is possible to effect a higher value for Next memory by altering the Boot file entry, but as soon as any use is made of the amount above 28640 the limit or any adjustment made to the bars, Next limit becomes fixed at that value until the next Boot up occurs? I would be interested to learn firstly if this problem can be resolved and secondly what decides whether an application uses either of these two types of memory. Of particular interest to me is being able to run large movie files using *!MovieFS* and manipulate large sprites. Just how much Next memory do you need to play a 37Mb FLC movie?

Memory can be referred to in three ways: physical memory as seen by the IOMD, logical memory as seen by the processor and physical page numbers – an arbitrary number assigned to each page of RAM physically present in the computer. This means that the memory management unit can chop up physical memory and present it to the processor in the best distribution for the job in hand.

The processor sees a logical memory map as a 32-bit address, that's 4Gb. Now that logical space is divided up into areas for particular jobs like I/O space, screen and stacks. One of those areas is application space and is 28Mb. Therefore, you will see that no one application can occupy more than 28Mb – that's why the 'next' bar would not grow any larger. This might, at first, seem to be a restriction on the size of objects, sprites etc that you can work with. However, this restriction is only on application work space – that is normally code.

If an application wants to have a large area of memory it should use dynamic areas. Over 3Gb is reserved for this so the only restriction is the physical amount of RAM available. I suspect what is happening is that the applications causing the trouble are trying to use application space to store their data instead of requesting a dynamic area.

It is understandable why they do this, as dynamic area management wasn't very good on machines earlier than the Risc PC and by using application space you could have a program work on a wider variety of machines. The only solution I can see is to contact the application authors and inform them of this problem.

The 'next' and 'free' memory bars indicate the following. The 'free' shows how much physical memory is remaining to be allocated for any purpose. The 'next' shows how much memory is reserved to be allocated to the next wimp task. Normally a task's !Run file will have a *WimpSlot call in it to alter this amount to what it wants before it runs.

The WimpSlot call can also set the 'next size' for the next task if it wants but normally it just defaults to what it was set to before. Therefore the 'next' memory bar allocation is ignored in most applications because it is set by the task and then reset to its original value. It is mainly non-wimp tasks that make use of the 'next' allocation like Basic files that are double-clicked.

What I can't understand is why you are having difficulty playing a movie. You don't have to load all the movie into memory to play it – in fact that is the whole point of computer movies. They are decompressed in small chunks called frame buffers. It could be that there is something strange about that particular movie or your version of MovieFS. Your best bet is to contact the staff at Warm Silence Software directly who are definitely on the ball. AU



Toastmasters **Dave Acton** and **Dave Lawrence** present another selection of the weird and tasteful

star info

Toast master

Author: Matthew Wilson

THOSE OF you who have followed our popular hardware series *Computer in the Kitchen* should now be ready to try out a demonstration of the *KAI* (*Kitchen Application Interface*). The first comes from none other than **Matthew Wilson**.

!Toaster is a splendid example of how easy the interface is to use. It comes complete with a bread driver, but Matthew has not yet perfected one for crumpets – if any readers would like to try their hand we would be more than happy to publish the results.



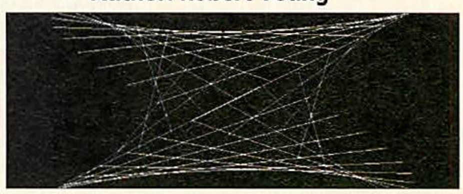
Over the next couple months you can look forward to *!Kettle* and *!Blender*. One regular contributor is also working on *!Microwave*, although following the sudden and unusual demise of his pet chinchilla, further development has been suspended until a full investigation by the RSPCA has been completed.

As always, please observe all the necessary safety precautions outlined in previous issues.

*Info cannot, regrettably, be held responsible for death or serious injury caused by not adhering to the strict household appliance syntax outlined by the European Safety Commission in pamphlet AF010497.

Line dancing

Author: Robert Young



SOME, WELL, 'circley' things I suppose you might call them, have been created by one **Robert Young** of Batley. There are four flavours, labelled *Circley1* to *Circley4* for both your convenience and delight.

Circley1 is the simplest and just involves lots of lines being plotted from and to points on the perimeter or a circle. The circle effectively rotates at increasing speed and the lines dance accordingly. *Circley2 to 4* are further experiments on the theme. The result, which uses mode 12 and two banks of screen memory for smoothness, is very effective. Risc PC users may wish to experiment with different modes – you may need to change the 511s in the program so that the patterns fit on the screen. Note that the MODE 128+12 is included to allocate and clear the second screen bank.

Four play

Author: Nigel Stoner

As you may well be aware, we like to slip the odd game between the words of wisdom from time to time. Well, not so much one game as four – each a mini-masterpiece, hand-crafted in finest Basic by **Nigel Stoner**.

Back in the old days, one-line games were quite the thing of course. Who could forget *Leemings* or even *Lurch*? These days, one-line doesn't really mean so much, so although we still honour the tradition from time-to-time, a new measure of programming conciseness was required. Thus, the 1K game was born.

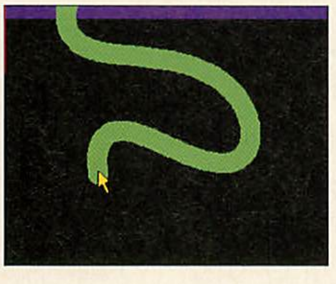
Each of Nigel's splendid offerings is exactly 1K in length. (Yes, you could fit half-a-million of them on your average cover CD and then some.) If you think you can match Nigel's handiwork with some mini-games of your own we would of course be overjoyed to see them. In the meantime, oil your mouse and enjoy Nigel's fab four...

Boing!



- *Object:* Save the blobs by bouncing them off to the sides of the screen (safe areas)
- *Control:* Move the bat with the mouse – the nearer the sides of the bat the blobs hit, the further they bounce. You start with one and each level increases by a blob. (My best is 10 saved.)
- *Scoring:* One point for each bounce of a blob, 10 points for saving all blobs in a level. (My best score is 370.)
- *Features:* Simple but addictive gameplay, with that *just one more go* grip. Lots of levels, each with their own colours. A memory element (remembering which colour blob is next!). Progressively harder levels.

Buzz Off!



- *Object:* Stop on the green wire. Can you can remember that game with a piece of bendy wire and a wire hoop? You had to move along the wire without touching it. Well this is the computer version
- *Control:* Pick your skill level (1 to 9) and then keep the pointer in the green. If you stray from the wire the computer will make a crashing sound. When the red bar reaches the bottom you are out
- *Scoring:* One point every time the screen scrolls
- *Benefits:* This game promotes good hand-eye co-ordination for people of all mouse abilities
- *Hint:* Try to stop in the middle of the screen and not follow the end of the wire
- *Customisation:* Change the line t=RND(-45) to a different (MINUS) number, eg -1 or -50. Beware – some wires are impossible to follow (big holes).

Clay!

- *Object:* Shoot as many of the 10 red clay pigeons as you can
- *Control* : Move with the mouse, any button to fire
- *Scoring* : Scoring is distance away x shots left
- *Features:* Hi-score table records top 10 places and names. Gun freezes after four shots.

Hints: Try to shoot the clay as late as possible – you get more points that way. Don't be trigger happy – the number of points available with each shot are halved and the gun will carry on firing into the next round.

Golf!



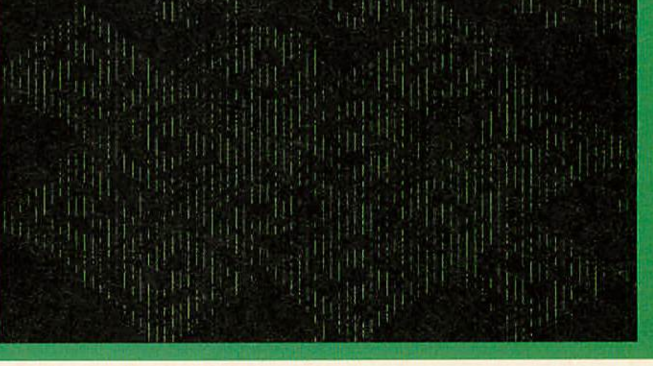
- *Object:* To get the ball into the red hole on the round green in the number of shots shown, or less. A minus score indicates you are doing well; a plus score less so
- *Control:* You can only move as far as the blue ring – this ring indicates 100 per cent power. Remember it indicates power not distance so the shot normally goes a bit further than the size of the line. When you've lined up the shot press the left mouse button
- *Hazards:* Trees (dark green) – if a tree is hit you can only play a short shot from under it. Bunkers (yellow) – if the ball lands in the sand again you can only play a short shot. Water (blue) – land in the water and – oh dear – you have to play the shot again and lose an extra shot as well. Out of bounds (black) – again you have to re-take the shot but there is no extra penalty. Wind (invisible whoosy stuff) – will affect shots in different ways. For example, -2.5 will blow the ball back; 3.2 will blow it away
- *Features:* 18-hole golf course with par 3, 4 and 5 holes, bunkers, trees and water hazards plus automatic club selection. An infinite number of courses can be made with the built-in designer – no more to buy! (Just change the -1 on the first line.)
- *Hints:* Straight shots – don't take them! The ball rolling bit of the program does NOT like them at all and you will fall well short of the target. Putting – wind does not affect your putter.

Viennese swirls

Author: Scott Boham

This would be a very clever headline if the author of *Swirler*, **Scott Boham** were from Vienna. However, we are reliably informed he is in fact from Romsey in Hants, although this may be twinned with Vienna (with any luck). We digress.

The purpose of the program is to illustrate what happens when a chequered flag gets swirled around a bit. The method by which this is achieved is not entirely dissimilar to that employed by one Mr Vibe in his *Fire* demo of many moons since. **Mr Boham**, to whom we must incidentally apologise for calling Bonham on far too many occasions, also includes a bit of machine code to change the colours upon Vsync and thus maintain our interest which, of course, is quite satisfactorily maintained in any case.



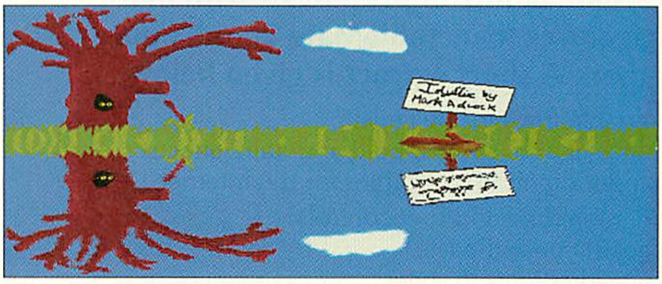
Idyll events

Author: Mark Adcock

If the pressures of urban life are getting to you we have sanctuary! Just run *!Idyllic* by **Mark Adcock** and let your troubles float away downstream.

The particularly nice water-rippling effect is just done in Basic with good old RECTANGLE FILL TO (rather like *Swirler* in fact). Everything else is done with OS_SpriteOp.

The only clouds on the idyllic horizon, apart from the two obvious ones, are a crocodile who makes the occasional appearance and the shifty geezer who lives in the tree. And talking of clouds, don't forget that next month will see the top entries in our cloud-making challenge.



Frond wishes

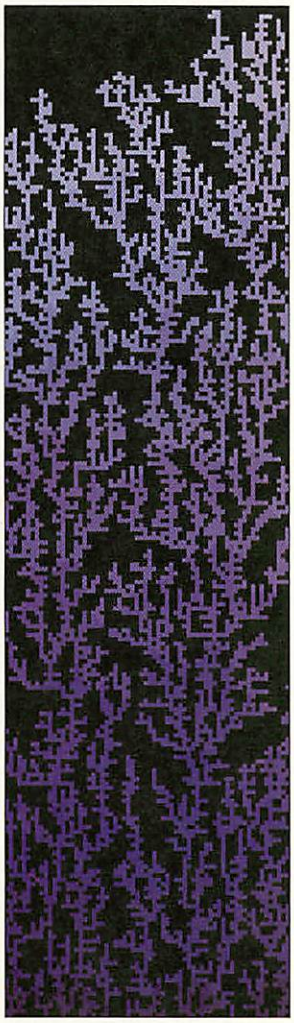
Author: Edward Smale

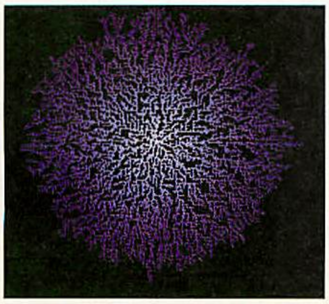
THE LATEST in on-screen vegetation now from none other than **Edward Smale**. His *Fern* programs are, apparently, demonstrations of 'Diffusion Limited Aggregation'. But of course, any fool can see that.

There are three demos in all – numbered, curiously, 1, 4 and 5. It is possible that the numbering system is related to the diffusion limited thingummybobs but more likely 2 and 3 didn't turn out so great. There are high-res versions of 1 and 4 (i.e. 1 and 2) for RiscPCers.

The principle behind the frondliness is, Edward tells us, simple: "A pixel starts off at a random point at the top of the screen and goes for a walk downwards, moving left and right at random. When it meets another pixel or the bottom of the screen, it stops and stays on the screen. Another pixel then starts off at the top and walks downwards and so on.

"To speed things up a little, the height at which pixels are dropped from is set to be just above the highest point which has currently been plotted. In *Fern4*, instead of going downwards, the pixels are attracted to the centre of the screen. This produces a circular fern growing outwards. *Fern5* is a variant on *Fern4*. All this is a lot easier to see by running the slow versions – pressing 'S' at the beginning of the program(s)."







Wood work

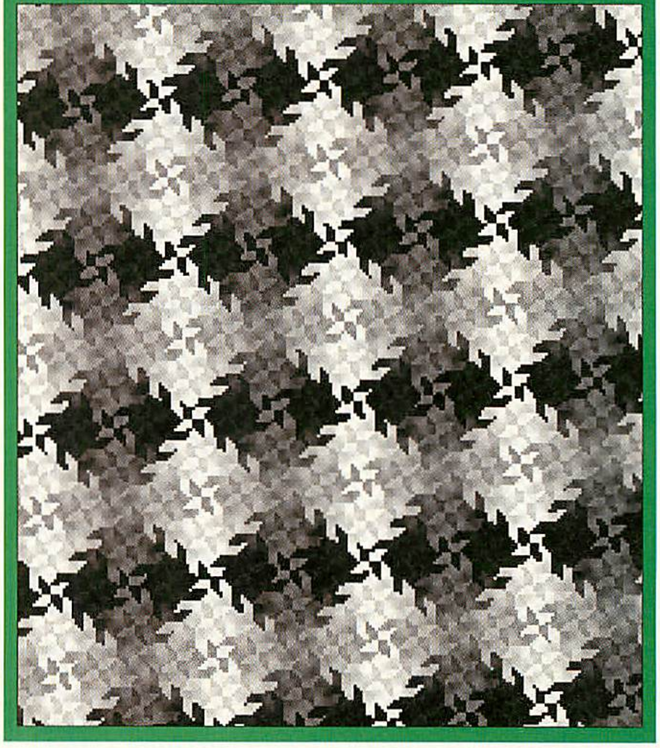
Author: Keith Wood

THE LATEST work of **Keith Wood** comes under the title of *!Texture*. It's one of those texture-mapping, sprite-rotating, lots-of-frames-per-second-on-a-RiscPC kind of demos.

"I wrote this after realising that I just couldn't get a full screen sprite rotation routine to run at 50 frames a second on an A5000. Instead of using a bit-map image, I wrote a small Basic function that modelled how a mathematically generated texture would need to behave: for a given set of co-ordinates a colour was returned. This worked fine and so I converted it into ARM code. The result is texture that can be manipulated at 50 frames a second (on an A5000).

"There are hundreds of textures that could be created this way, I have some more texture functions but each would have to be individually coded. This is a pure demonstration of binary mathematics and not really an interactive demo – but it's nice to watch.

"People with slower machines might like to experiment with the code by removing the 'WAIT' instruction at line 68 as a tear may occur in the image if this code fails to run at the optimum frame rate as no shadow banking is used."



Curve dare

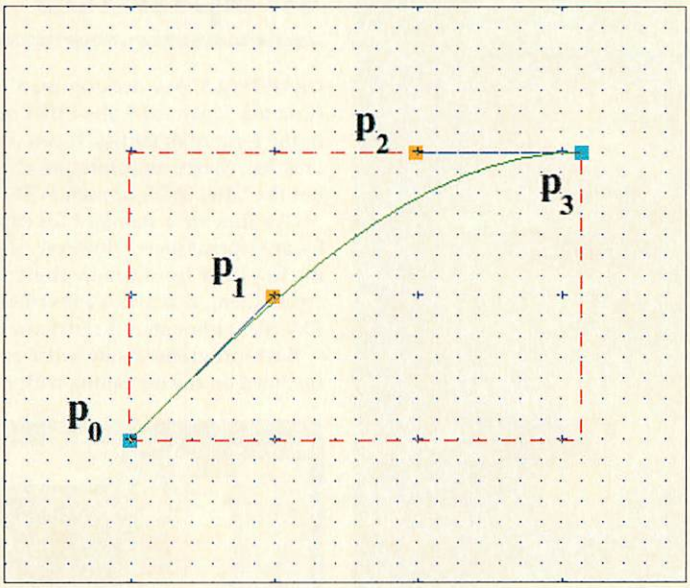
Author: Peter Borcherds

IN THE August issue last year, we had a submission from Mark Hammond which produced a plot of your daily bio-rhythms. At the end of Mark's letter he asked if it is possible to represent a sinusoidal wave using a Bezier curve. At the time his bio-rhythms were plotted with a series of short straight lines and although in practice these were indistinguishable from a true curve, the result was just slightly unsatisfactory.

The answer to Mark's question is of course 'yes', give or take a little artistic licence, and for the explanation we are very grateful to our old friend Peter Borcherds:

"For all but the very simplest curves, a Bezier curve is only an approximation to the exact curve: the Bezier circle in *!Draw* is accurate to about one part in 4,000, but is visually indistinguishable from a true circle. Very few display devices can display curves with such precision, so the imprecision is lost in the resolution of the display device.

"A Bezier curve in !Draw is defined by four control points. Two of the control points, the outer ones, mark the ends of the curve, the other two, the inner ones determine the shape of the curve.



"To plot a Bezier curve representing a sine curve from angle a to angle b, the four control points, p_0 to p_3 are:

p_0 = (a, SIN(a))
p_1 = (a + (b-a)/3, SIN(a) + COS(a)(b-a)/3),
p_2 = (b - (b-a)/3, SIN(b) - COS(b)(b-a)/3)
p_3 = (b, SIN(b)).

"Remember that the angles a and b are in radians. When using the above formulae, appropriate scaling factors and offsets may have to be used to obtain a curve of a suitable size.

"In order to create a curve which is a good approximation to a sine curve, the range a to b should not be too big: at most p/4 (45°). If the range is larger than this, it must be subdivided, and several Bezier curves plotted.

"When creating a Bezier curve in !Draw, it is possible to edit the positions of the *outer* control points numerically (using ctrl/E and F5) but it is not possible to edit the positions of the inner control points p_0 and p_3 in this way.

The only way to position precisely the inner control points is to switch the grid lock on, and to choose appropriate values for the grid intervals and subdivisions, and then to drag the control point to the appropriate grid point. In principle, by doing this, the position of each control point can be located as precisely as the resolution of the display device justifies but it is an impracticably tedious procedure for the general case, when different grid intervals and subdivisions may be needed for each point.

It is however practical to use the above procedure with !Draw to draw a Bezier curve to approximate a sine curve from 0° to 90°, with a precision as good as that of a Bezier circle. Since the 'full' sine curve can be built up from rotated and reflected copies of the curve from 0° to 90°, this will enable one to draw as long a sine curve as one wishes, in multiples of whole right angles

Procedure for drawing a sine curve from 0° to 90° using !Draw

- Select a grid spacing equal to 1 inch, with a subdivision of 7
- Select grid lock (shift F1), and display grid (F1)
- Draw an open Bezier curve from a major grid point (p_0, the origin, at (0,0)) to a minor grid point $3^1/_7$ inch to the right and 2 inch up (p_3 at ($3^1/_7$,2)). Press select to complete the curve (which at this stage is a straight line)
- Select the curve and edit it (control-E)
- Using the Adjust button, drag the lower inner control point (p_1) to the major grid point (1,1), and the other inner control point (p_2) to the major grid point (2,2), as shown in the figure.

That has drawn a sine curve, from 0° to 90°, to a precision of a few parts in 10,000. It is indistinguishable from a sine curve by any visual test even at the maximum zoom range of !Draw.

To extend the sine curve to 180°, either copy it, transform the copy, with the x-scale set equal to -1, then join and group the copy with the original or alternatively, draw a Bezier curve from (0,0) to ($3^1/_7$,2) to ($6^2/_7$,0), and then drag the four inner control points to the appropriate grid points.

A sine curve may be scaled by selecting it, and then either transforming it, using the x-scale, y-scale and magnify options, or else dragging the lower right handle on the outline box.

Note that in *!ArtWorks* it is possible to edit numerically all the control points, so one can use the formulae in the equations directly. It is also possible to create Drawfiles from a (BASIC) program, implementing the formulae explicitly, an example of this can be found on the cover disc."

Patience is a virtue

Author: Justin Fletcher

THE AUGUST '96 issue of *Acorn User* must have been a popular one. Our next item this month is a small patch from **Justin Fletcher** which allows you to play Paul Irwin's *FreeCell* patience on pre-RISC OS 3.5 machines. The problem with running the game on an A5000 is that it calls Wimp_ResizeIcon – a 3.5 only call. Justin's patch comes in two parts – firstly a module which provides an equivalent WimpHack_ResizeIcon call and also a small prog to replace the call to the original SWI in the *FreeCell* RunImage.

You will need a copy of the original game from the August disc then from this copy the contents of the application *except for the !Run file* into Justin's FreeCell directory. You should then run the *!RunMe file* and finally rename the directory to *!FreeCell* before running it.

Star info

The urban spaceman

Author: Quintin Parker

Ahh... The Bonzo Dog Doodah Band, surely a classic if ever there was one. *Spaceman* is actually a tiny module from **Quintin Parker** that looks out for the 'Press SPACE or click mouse to continue' message, waits one second and then presses space for you. This may seem a little lazy but there are often times when some prog or other produces a command window and doesn't close it properly and you have to fumble across your desk to depress that huge, heavy button at the bottom of the keyboard... On the bells and whistles front *Spaceman* comes with one bell – you can hold down the Alt key to stop the automatic space from happening.

Quintin's approach is to attach a piece of code to the write character vector and watch out for the string a character at a time. This does work and works surprisingly well, but in reality is probably not the best way to go about things. Can anyone come up with a better implementation?

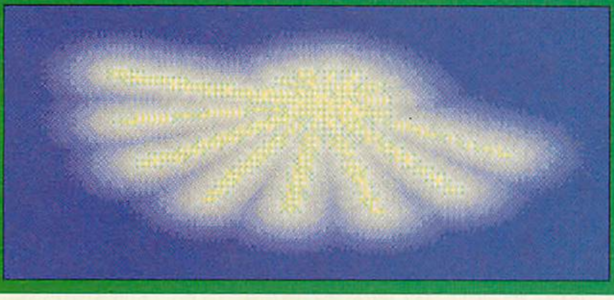
Circle work



IT SEEMS as if our circle 'challenge' has proved very popular as we are still getting circle-based graphical doodles submitted. Even though the closing date has long since passed, we are still very interested in seeing your circular programs.

Our second contribution from **Mark Adcock** this month most definitely fits into the circle category. He has sent us three variations on a theme – *Scallops, Spirals* and *Squids* with two versions of each – one for 256 colour modes and one for 32,000 colour modes and hence Risc PCs only.

Scallops and Squids are both very aquatic with a subtle blue background and a smattering of, er, scallops and squids respectively. Spirals uses the same blue background and pastel shades to plot a bunch of deep sea spirals.



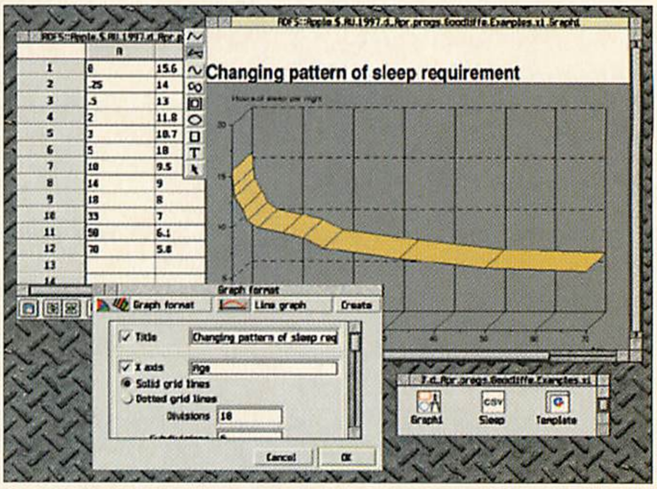
GraphPlus

Author: Pete Goodliffe

GRAPHPLUS IS a desktop graph processor, taking data from CSV (Comma Separated Value) files and generating high quality graphs in the form of drawfiles. It can produce line and scatter graphs, various bar charts, multiple pie charts and tables. It can produce all but the latter in 2D or pseudo-3D versions.

CSV files are a standard for data transfer and should be produced by any spreadsheet. However, if you do not have a means of producing data for a graph the application *CsvEdit* is provided to create them. It is also a convenient application for minor editing of CSV files although it is restricted to a grid size of 7 x 20.

Both programs come with extensive documentation which is included on the disc along with a number of example files.



*QUIT

All submissions – application, doodles, music and madness – to our regular haunt please:
*INFO, *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP
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austarinfo@idg.co.uk

You needn't include a letter – save the trees and all that – but **please put your name, address and program title on every disc** and include a text file containing your name, address, disc contents and program details. Diagrams, examples and background info will be much admired and possibly even used. An SAE will ensure your discs are returned. *info submissions only please.

Compatibility table

Program	RISC OS 2	RISC OS 3.1	RISC OS 3.5+
Circley1	Yes*	Yes	Yes
Circley2	Yes*	Yes	Yes
Circley3	Yes*	Yes	Yes
Circley4	Yes*	Yes	Yes
!Texture	Yes	Yes	Yes
!Toaster	No	Yes	Yes
!Boing	Yes	Yes	Yes
!Buzz Off	Yes	Yes	Yes
!Clay	Yes*	Yes	Yes
!Golf	Yes	Yes	Yes
Fern1	Yes	Yes	Yes
Fern1_RPC	No	No	Yes
Fern4	Yes	Yes	Yes
Fern4_RPC	No	No	Yes
Fern5	Yes	Yes	Yes
!Spacemen	Yes	Yes	Yes
!Graphplus	Yes	Yes	Yes
!CSVEdit	Yes*	Yes	Yes
Make Sine	Yes	Yes	Yes
Swirler	Yes	Yes	Yes
!Idyllic	Yes*	Yes	Yes
Scallops	No	Yes	Yes
Scallops32	No	No	Yes**
Spirals	No	Yes	Yes
Spirals32	No	No	Yes**
Squids	No	Yes	Yes
Squids32	No	No	Yes**

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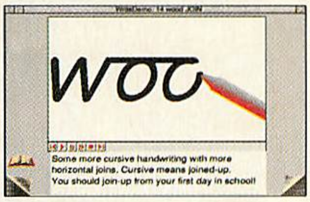
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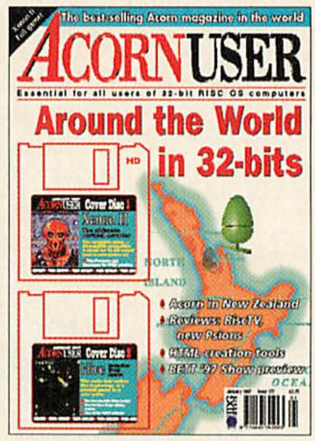
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SOFTWARE SHOWCASE

All mixed up

Construct a computer controlled stereo

In the November 96 issue of *Acorn User* I described how to build an audio-switching unit that allowed you to switch between four audio sources and also control stereo pan and tone. If you only have one set of speakers and would like to hear, say, both a CD as well as the computer beeps, you need an audio mixer. It's useful for other things too – theatre sound, home studio and rock groups could all find a use. This month I will show how to construct a computer controlled, seven channel, stereo mixer.

The heart of this project is the LM835 chip which is actually in the catalogues as a Graphics Equaliser but here I am using it in an unusual mode to mix signals. I'll explain how to use it as a Graphics Equaliser in a future article. You just need this chip and a pair of op-amps to make a handy mixer – the circuit is shown in Figure I opposite.

The audio output is buffered through an LM833 op-amp which is especially designed for audio applications having very low noise output. There are two amplifiers in a package so the whole design only occupies two chips. The 100pF feedback capacitor is there to provide negative feedback at high frequencies and so prevents the amplifier from oscillating.

The power supply may seem a little odd at +/- 7.5 volts, however it is set at this rate only to provide maximum output voltage from the mixer. It will work down to +/- 4 volts so a wide range of supplies can be used. In general, the maximum output swing is about 1.5 volts smaller than the power rail. Note that the chip has both an analogue and digital ground, which often confuses beginners as they think the two must be separate.

The two ground connectors must be at the same potential and so must be joined but only at one point. This means that all the wiring for the analogue and digital sections is done separately and then they are taken back to the power supply and connected them together. In this way switching noise from the digital part of the circuit does not get into the analogue path.

Each mixer channel can be adjusted between -17 dB and +14 dB over 12 steps, but for ease of use the software just labels each level with an arbitrary number. By the way, a dB is a deciBel or one tenth of a Bel and is a logarithmic measure of the gain. It is used because the ear's response is roughly logarithmic so that a 1 dB increase in gain sounds the same no matter what the volume level actually is. It's based on a ratio of input/output and can be easily calculated by:

```
Gain dB = 20LOG(input/output)
```

If the gain is positive it is louder than the input; if it's negative it is quieter. If there is a gain of 0 dBs the output is exactly the same as the input.

Construction can be done on veroboard, but make sure the connecting wires between the chip and the op-amp are as short as possible. The chip designers made this possible by careful planning of the pinout. I found that by placing the op-amp above the Graphics Equaliser chip it all worked out very neatly. I have shown the audio inputs going into the chip but, of course, all the audio signals will need their own earth which should be connected to the analogue earth pin. Also, if the audio input has a DC offset you should AC couple the inputs – that is connect them up through a large capacitor, say 47uF. You might have difficulty getting hold of this chip, if so, see the help file in the mixer software.

There is one very important point about using this chip – it must be powered up before connecting it to the computer. Yes I know that's true of all interface circuitry but it generally doesn't matter – this time it does. If you do connect the printer port to the mixer before applying power, there is a loud noise when the sliders are dragged and the chip locks up and draws a lot of current. This means it gets very hot and if left more than a few minutes will probably self-destruct. I think this is something to do with the fact that there is a 5 volt logical input for the control signals but yet no 5 volt supply for the chip.

The Graphics

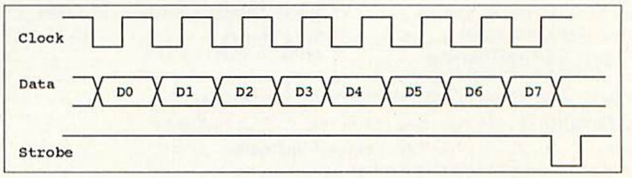


Figure II: The data format needed

mixer with **Mike Cook**

Equaliser chip is controlled by a three-wire serial interface of a type that is becoming increasingly popular. It's the same sort of interface I used for the FM radio in September 96 *Acorn User*. It consists of data, clock and strobe signals and the arrangement is shown in Figure II. Basically data is clocked into the chip on the rising edge of the clock signal and when all eight data bits have been input a strobe signal is sent.

I have shown this as being connected to the printer port but any 3-bit digital output can be used. For example, this can be on the I^{2}C bus interface or the Serial I/O board – I'll explain how to change the software later. The speed requirements of the interface are such that we don't need to resort to machine code; BASIC is fine.

The chip is controlled by sending it two bytes. The first selects the channel and the second determines the gain of that channel. These bytes are shown in Figure III and you can see that it is bit 7 of the byte that tells the chip what sort of byte it is. The channel select is quite straightforward, bits 0 to 3 selecting the channel. For stereo operation channels 1 to 7 are used for the right side and 8 to 14 for the left. Note here that channels are numbered 1 to 7 and not 0 to 6 as might be expected, therefore if you put 0 in the channel select no channel will be selected.

The gain select is somewhat more complex. On the face of it, Figure III looks simple enough with bits 0 to 5 determining the amount of gain. However, the bits that determine the amount are not straightforward. This is because what they are actually doing is switching resistors in and out of the circuit. The number needed here is not in a normal binary sequence and bears little relationship to the gain. Fortunately all we need to do on the software side is to use an array variable, in this case *Gain%()*, as a look-up table to convert from volume setting to bit pattern.

The software is quite simple and easy to operate. There are seven graphic slider controls and you simply drag them to change the gain – underneath each slider is the volume number. The setting on the sliders are saved in a data file called

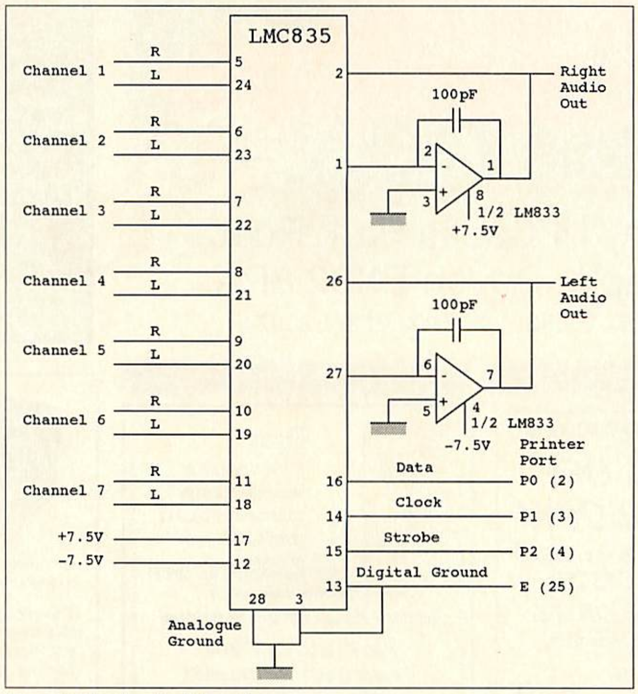


Figure I: The circuit of the mixer

settings which is stored inside the application whenever it is quit. These are restored when it is run again.

Communication with the interface is restricted to just one procedure – *PROCsend* – right at the end of the program. It is this that must be changed if using a different interface. Just alter the SYS calls that talk to the printer port to those that talk to the interface. Any interface initialisation can be done at the start of *PROCinitSlide* and the existing printer port initialisation can be removed. Note the printer port SYS calls are not available on single direction printer port machines. However, this is detected and my emulator module is automatically switched in. Also note that I have left the unused output pins at a logic 1 which will allow me to have a future graphics equaliser in operation at the same time.

I said that the software was quite simple and depending upon your application you might like to extend it. For example, the mixer values of each side of the stereo signal are the same. You could have another set of sliders to control the left and right side independently.

If using this for the theatre you might like to have two sets of sliders and a master cross-fade slider. In that way you can have one set of mixing levels and using the master slider move over to the preset levels. Then use the other set of sliders to set up the next sound cue.

You might even like to consider storing all the levels for the cues in a file and having them automatically set up. There are lots of possibilities for this project depending on your needs. AU

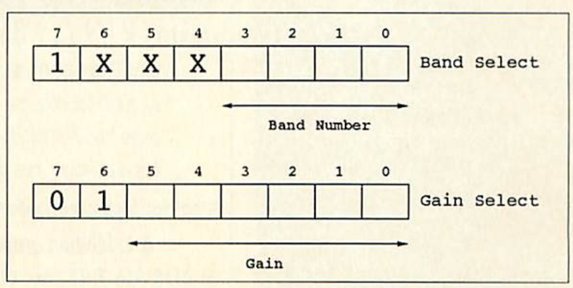


Figure III: The data structure

SOFTWARE SHOWCASE

BUSINESS SOFTWARE

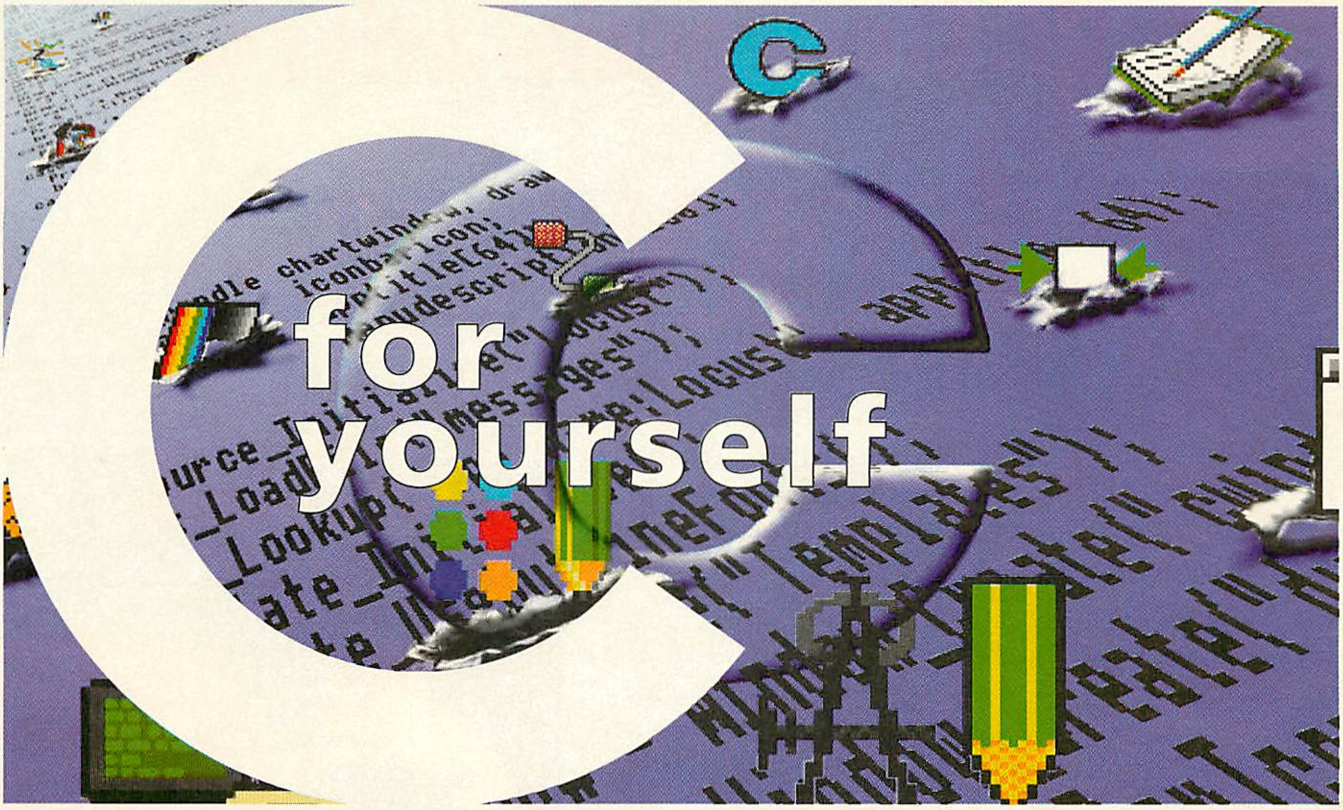
NETWORKING

EDUCATION

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JACK KREINDLER

C for yourself

Steve Mumford looks at alternative methods of saving data

In last month's column, we covered the actual mechanics of saving data from an application to a file – because the main function of the program in question was to store text, it made sense to store the data in a simple textual format. However, this isn't the only technique available and sometimes it's best to use an alternative method.

Storing data as plain text within a file has some big advantages – for instance, it's easy to edit from outside the application, and file conversion is made much simpler. It's also easy to transfer a data file between hardware platforms, as very little (if any) editing of the sourcecode is required to load one of these files into the same program that's been compiled for use with a different computer.

However, as we saw last month, a certain amount of processing has to be done when reading the data to transform the plain text stored within the file to a format suitable for storage in the program's data structures. In our application, this conversion didn't cause a problem as the data files are small and loading is performed infrequently. However, it's easy to envisage a situation where the majority of the data is numeric and disc access plays a greater part – for instance, manipulating a database file that's too large to be stored in memory.

Switching to a binary format file allows the use of two extra functions, **fread()** and **fwrite()**. Unlike the functions we've seen before that essentially 'print' to an open file, these two access the file more directly and transfer whole blocks of memory in one call.

To see how these techniques differ, imagine you've set up a variable that can hold a four-byte number. Within the program, you've set the value of this variable to be equal to '1'. Whereas using **fprintf()** or **fputs()** functions would result in a file containing the actual character '1' (with an ASCII value of 49), using **fwrite()** would dump out the four bytes that made up the variable – the file would contain three 'zero' bytes followed by a 'one', and since these don't lie within the usual ASCII character set, they wouldn't be visible as normal text and would appear in *Edit* as control characters.

Storing data in this way means that it's more efficient at loading and saving large, numerically dense files and this can be desirable if you have an application that performs a lot of disc access. However, there is a catch – because you're saving a snapshot of a section of memory, the data files produced tend to be machine-specific and guaranteeing compatibility between different platforms can take a lot more work. This stems from the fact that different compilers use different amounts of memory for holding the various types of variables. If you try to load a four-byte integer into a space that's only two bytes long (as can be the case with certain **short** integers), you'll end up with a corrupt file.

fread() and **fwrite()** both take four parameters, and these are as follows: the first is a pointer to the block of data you wish to load or save, the second is the size of the data block you want to transfer, the third argument allows you to specify how many times you want to repeat that operation and the fourth is a standard file pointer obtained by the **fopen()** function. It's important that this file pointer refers to a binary-type file, so you should add a 'b' to **fopen()**'s file access flags. For instance, to save an array of 10 **jump_data** structures, you might do it in the following way:

```
FILE *file_ptr;
struct jump_data jmp_data_root[10];
/* fill the array of structures with
information */
file_ptr = fopen("filename", "wb");
fwrite(jmp_data_root,
sizeof(jump_data), 10, file_ptr);
fclose(file_ptr);
```

The **sizeof()** function allows the compiler to determine the exact size of an individual **jump_data** structure, to save you having to add up the sizes of all its elements. The one **fwrite()** command saves the array in its entirety, saving a lot of tedious translation. Loading the data back is just as simple; the file is opened with *binary read* access, a suitable area of memory is prepared, and the **fread()** function called. Finally, saving data in this raw format allows us the potential of random access; more of which later. AU

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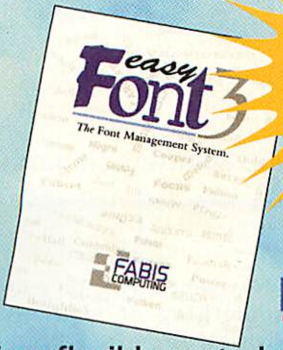


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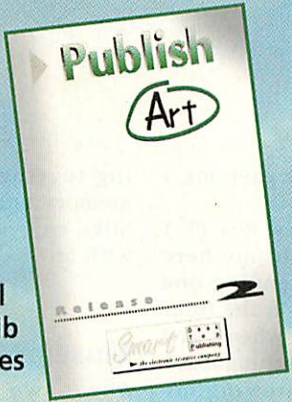
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let

Acorns in the sun

When I came to live on the western seaboard of Portugal nine years ago I brought with me my first BBC Micro which I had bought in the mid-eighties at seventy years of age. I soon discovered that Portugal is all PCs.

On learning of the new 32-bit machines I arranged to buy an A3000 with printer from Watford Electronics. I then drove across Portugal, Spain and France to fetch the A3000, only to find nothing in readiness for me and eventually found myself tearing up and down the M1 alternating between the new Luton warehouse and the old premises at Watford, eventually leaving as I had a sailing date to keep. I persevered and together with a prayer mat made things work albeit extremely slowly. Eventually I subscribed to a small club known as Abacus and that gave me a shoulder to lean on.

When I read about the new Risc PC I rang Beebug and they told me here would be no problem in sending one out to me by courier. I was in the front garden about a month later when I saw a lorry stop. I rushed out and managed to stop the driver from throwing my new computer to the ground.

Unfortunately when I came to pick up one of the packets there was an ominous rattling. I opened it and found a small board with chips loose inside. Panicking I rang Beebug and a calm voice the other end told me. "That will be the processor, just plug it into either of the two rows of pins that you can see". I did and it worked.

When the StrongARM was released I decided to get one and received the package in November. This presented me with something of a problem because, with all the dire warnings about static, I was reluctant to fit it myself. Accordingly I got in touch with Beebug asking, if I ordered a colour scanner and more memory, would any of their staff care to come out, fare paid for a short holiday with us and fit the new things.

Eventually I received a letter saying that they were all too busy. A couple of days later, looking through my files and wondering what to do, not relishing another long drive across Europe, I came across an old invoice from Pineapple Software. I phoned them and explained what I wanted. A young man said "I'll be there Friday" and sure enough my wife and I met Mike Daniels off the plane, and within hours I had an Epson GT colour scanner up and working together with 16K of additional memory and StrongARM fitted — and Mike enjoyed the rest of his weekend with us.

Denis Murray-Smith
Algarve, Portugal

Museum pieces

About two years ago you were kind enough to print my letter about starting a BBC A/B/Master museum. The response was very generous but to get on from there has been rather difficult. The original concept was of an archive with a working section attached. Unfortunately, the cost of establishing or converting an existing building into a museum is now out of reach, thanks to the Building and Fire Regulations.

Local museums are only able to handle exhibits with local connections and the

ters

National Museum of Science and Technology has space only to store selected items with no guarantee that they will ever be exhibited. Two museums are prepared to consider offering space but only in the unspecified future. I wonder whether any of your readers have contacts which could help?

The general feeling among those who have donated equipment is that although archiving should have first priority, making equipment available to the public is also very important and to this end I shall maintain a specimen collection at home where it will be available by appointment.

Oddly enough, the manufacturers and suppliers of the Beeb and its ancillaries seem to be totally uninterested in the project and numerous letters to Acorn, Watford Electronics and so on have elicited not a single reply. Having worked for British Aerospace I can understand that, apart from the Production Management, most departments in a firm are concerned mainly with future developments but I am surprised that there appears to be no interest at all in tomorrow's history. I'm surely not over-stating the case when I say that the Beeb is the computing equivalent of the Spitfire or Mosquito?

If anyone is interested contact me at Low Scathwaithe farm, Ulverston, Cumbria LA12 7SP.

J M Hepworth
Cumbria

NetComputer? Old idea

A lot of coverage has been given recently to the innovative Net Computer, however what most people fail to realise is that the basic idea is not new. There was a computer for sale as far back as 1986 based on the idea of a discless machine using a remote computer for storage. It also had a built-in modem and network interface and came with a number of applications in ROM, including word processor, spreadsheet and communications and had primitive multitasking capabilities.

Who made this machine which was 10 years ahead of its time? A little-known Cambridge computer company called Acorn and it was called the Communicator.

I am a collector of computers and I am looking for contact from other collectors with a view to forming a club. I currently have approx 50 computers (including a Communicator and 7 other Acorns). If anyone is interested contact me at 3 Willow Close, Spratton, Northampton, NN6 8JH.

Mark Randall

Find a better idiot

I am really concerned with the quality of software at the moment. I increasingly find that software is prone to crashing - and this is, quite simply unacceptable. I do not want to offend anyone so I will immediately say that I recognise what a tough target 100 per cent is and that I cannot and do not expect software to be 100 per cent reliable on the first release. But I do feel strongly that users should report bugs to the development team and efforts should be made to annihilate them.

One hundred per cent is the only acceptable target. Imagine if a ruler factory stated that 'No metre rule will leave us unless it is 95cm long' or if your keyboard arrived with a missing key.

An idea that I have may help, if only a little, to bring us closer to that goal that I believe we all want - users and programmers alike: 100 per cent reliablility. Perhaps *Acorn User* could produce an award similar to that used by various Amiga magazines such as the 'Gold Format' for a game scoring more than 90 per cent in their reviews. The producers can then flaunt this award, and hopefully attract sales. *Acorn User* might like to produce an award for 100 per cent reliable programs, 99.9%, 99.7% and 99.5% - platinum, gold, silver, bronze acorns perhaps? The awards would be considered during review and from readers comments after release. If a program crashes it must be shown to be the programs fault.

Anyway that's just an idea and obviously needs a lot of work before it is viable. How do you calculate the percentage reliability of a program?

Paul Whiting
London

We don't do ratings as such so we wouldn't do an award of this type. However we would be interested to hear from you if there is any major program — such as Impression or Photodesk — you've used on a regular basis that has never crashed. If we find one that has been used by a significant number of people we'll issue a special award.

Sorry about this —

In David Matthewman's March HTML article last month there was a bijou problemette where the double hyphens - - in the comment examples were converted to long dashes — by our very clever conversion software.

Also there were a couple of errors unintentionally introduced into the MenuBar/Draggie review, contrary to what was stated: MenuBar 2 does have multiple sets of menus, up to 30, with password protection if required; MenuBar 2 does scroll left and right rather than overlapping menus on a small width screen; and the menus are not flipped to the front on a screen mode change. There is a demo version of MenuBar 2 on the cover disc so why not try it out for yourself.



Geoff Titmuss

The Regan files

'Textease is perfect for the primary classroom: it is sophisticated enough to meet pupils' demands, but at the same time so easy to operate that even a headmaster could learn to use it eventually'. – Arnold Evans (*TES*)

The great thing about the Acorn market is the diversity of scale of companies in it. One month I can be in London talking to someone who heads a large company floated on the stock exchange and the next I'm in picture-postcard rural England, chatting to a man on a unicycle.

The man on the unicycle is Geoff Titmuss, a couple of weeks after his *Textease* (DTP) package won an *Educational Computing and Technology* Gold Award for primary software at this year's BETT.

'I don't see the award as the end of something – I just see it as the beginning of the next era of Softease. The only problem is that people tend to see Textease as a children's program, when in fact it is a very enabling program for all. I originally wrote it with my wife Sarah in mind, a program she could use easily.

'PC people have so little imagination in what they have done'

'I am not saying she is stupid – she is in fact a qualified GP – I just wanted something which was not for computer people. Admittedly we do target the education market, especially on the Acorn platform because most Acorns are in the education sector.'

Geoff originally got into programming when he started work as a fresh-faced graduate at Rolls Royce in Derby. After several years of messing around with mainframe computers and programming 'fourth generation languages' he moved into contract programming which gave him C experience and the sort of hours that let him keep up his interest in competitive sailing. While he was doing this he met another contract programmer, Danny Young, and they decided that they would like to set up a small business.

'I was learning object-oriented programming and the *intention* was to write a program to draw complex technical plans, a sort of nightmare flow-chart scenario. It suddenly hit me that what I *actually* had was a DTP program. I phoned Danny and said: "Hey! We have a DTP program".'

Geoff had never owned (or seen) a copy of *Impression* or *Ovation* when he wrote Textease. He felt they were too expensive for what they were and wanted a good product for a fair price.

'We went to our first Acorn World show armed with our program we were selling for £25 and thought we would easily sell 1,000.

'We were wrong. It's not surprising; we were an unknown company with an unknown product using an old A3000 and an original A4.'

Inexperience showed a little, too. Geoff was delighted when a pair of teachers saw Textease in action on the stall and were very interested, asking how many copies Softease could supply. Only after the pair had left the stall did Geoff realise that he'd neglected to take a note of their names.

The reason that Textease started on an Acorn platform is that the BBC B and A3000 were Geoff's 'hobby at home'. This was lucky for many reasons:

'The Acorn environment is very good; the user interface is so easy and helpful with drag and drop and stuff like that. Designing the product on the Acorn helped the PC version of Textease to become the product it is now. We are amazed at what we are able to do on the PC. PC people have so little imagination in what they have done.'

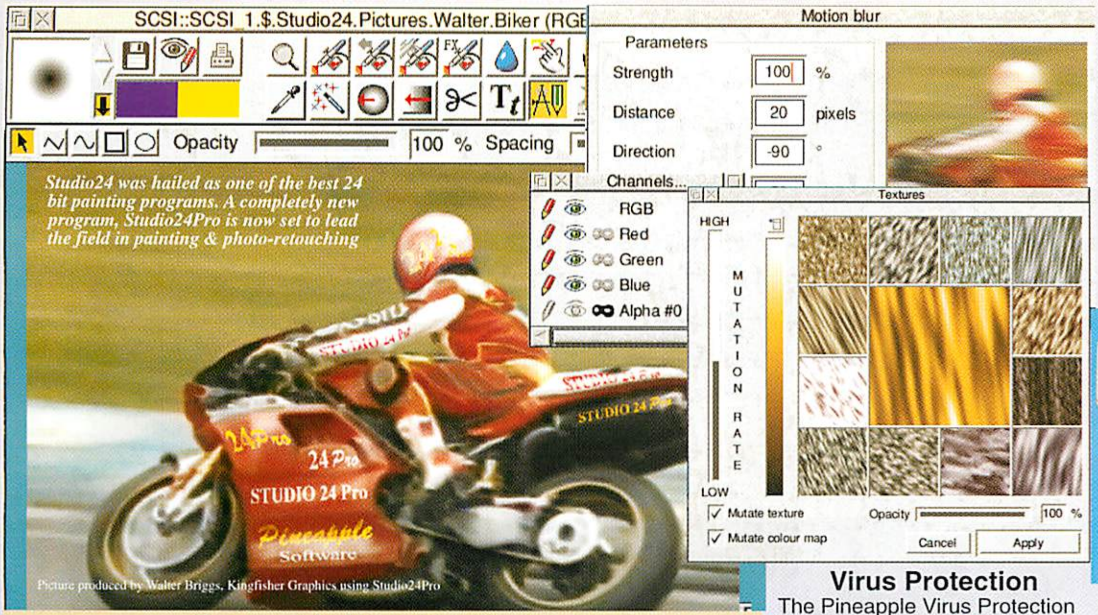
In contrast to a number of smaller companies in the Acorn market who feel the need to diversify and bring out a range of products to survive, Geoff is happy sticking with the product he knows – Textease. However, it is diversifying. Already there are several versions, soon to be joined by one designed to read and write HTML. The HTML Textease is taking longer than expected because Geoff intends it to be bang up-to-date with the latest HTML when it appears.

'HTML is moving forward so quickly that a lot of people's HTML browsers in the Acorn environment cannot cope. We are aiming to go in at the top.'

Although Softease's offices are in Derby, Geoff prefers working from home near Evesham. At first he was concerned that he would be isolated but soon realised that everyone is just an e-mail or phone call away – you should see his phone bill.

Then again, there are the 'intangibles' – hidden advantages of village life – like being able to unicycle to the post office to send off people's orders with no-one batting an eyelid.

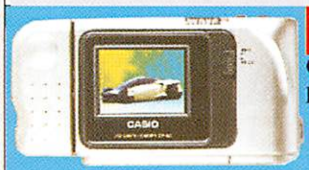
Jill Regan



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